Instruction Manual
LH160 ECO6 SERIES

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LH160 ECO6 SERIES

Thank you for purchasing this product. Lorex is committed to providing our customers with a high quality, reliable security solution.

This manual refers to the following models:

LH1608 (8-channel)

LH1612 (12-channel)

LH1616 (16-channel)

LH1624 (24–channel)

For the latest online manual, downloads and product updates, and to learn about our complete line of accessory products, please visit our website at:

www.lorextechnology.com

WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: TO REDUCE THE RICK OF ELECTRIC SHOCK DO NOT REMOVE COVER. NO USER SERVICABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF THE PLUG TO THE WIDE SLOT AND FULLY INSERT.

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1 Important Safeguards

In addition to the careful attention devoted to quality standards in the manufacturing process of your product, safety is a major factor in the design of every instrument. However, safety is your responsibility too. This sheet lists important information that will help to ensure your enjoyment and proper use of the product and accessory equipment. Please read them carefully before operating and using your product.

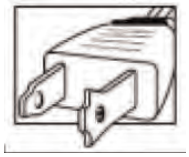
1.1 General Precautions

1. All warnings and instructions in this manual should be followed.
2. Remove the plug from the outlet before cleaning. Do not use liquid aerosol detergents. Use a water-dampened cloth for cleaning.
3. Do not use this product in humid or wet places.
4. Keep enough space around the product for ventilation. Slots and openings in the storage cabinet should not be blocked.
5. It is highly recommended to connect the product to a surge protector to protect from damage caused by electrical surges. It is also recommended to connect the product to an uninterruptible power supply (UPS), which has an internal battery that will keep the product running in the event of a power outage.

⚠ **CAUTION**
Maintain electrical safety. Power line operated equipment or accessories connected to this product should bear the UL listing mark or CSA certification mark on the accessory itself and should not be modified so as to defeat the safety features. This will help avoid any potential hazard from electrical shock or fire. If in doubt, contact qualified service personnel.

1.2 Installation

1. **Read and Follow Instructions -** All the safety and operating instructions should be read before the product is operated. Follow all operating instructions.
2. **Retain Instructions -** The safety and operating instructions should be retained for future reference.
3. **Heed Warnings -** Comply with all warnings on the product and in the operating instructions.
4. **Polarization -** Do not defeat the safety purpose of the polarized or grounding-type plug.
   A polarized plug has two blades with one wider than the other.

   A grounding type plug has two blades and a third grounding prong.

   The wide blade or the third prong are provided for your safety.

   If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

5. **Power Sources -** This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your location, consult your video dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
6. **Overloading -** Do not overload wall outlets or extension cords as this can result in the risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard. Periodically examine the cord, and if its appearance indicates damage or deteriorated insulation, have it replaced by your service technician.
7. **Power-Cord Protection -** Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.
8. **Surge Protectors -** It is highly recommended that the product be connected to a surge protector. Doing so will protect the product from damage caused by power surges. Surge protectors should bear the UL listing mark or CSA certification mark.
9. **Uninterruptible Power Supplies (UPS) -** Because this product is designed for continuous, 24/7 operation, it is recommended that you connect the product to an uninterruptible power supply. An uninterruptible power supply has an internal battery that will keep the product running in the event of a power outage. Uninterruptible power supplies should bear the UL listing mark or CSA certification mark.
10. **Ventilation -** Slots and openings in the case are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided and the product manufacturer's instructions have been followed.
11. **Attachments -** Do not use attachments unless recommended by the product manufacturer as they may cause a hazard.
12. **Water and Moisture -** Do not use this product near water — for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, near a swimming pool and the like.
13. **Heat -** The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.
14. **Accessories -** Do not place this product on an unstable cart, stand, tripod, or table. The product may fall, causing serious damage to the product. Use this product only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the product. Any mounting of the product should follow the manufacturer's instructions and use a mounting accessory recommended by the manufacturer.

15. **Camera Extension Cables –** Check the rating of your extension cable(s) to verify compliance with your local authority regulations prior to installation.
16. **Mounting -** The cameras provided with this system should be mounted only as instructed in this guide or the instructions that came with your cameras, using the provided mounting brackets.

17. **Camera Installation -** Cameras are not intended for submersion in water. Not all cameras can be installed outdoors. Check your camera environmental rating to confirm if they can be installed outdoors. When installing cameras outdoors, installation in a sheltered area is required.

1.3 Service

1. **Servicing -** Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
2. **Conditions Requiring Service -** Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    - When the power supply cord or plug is damaged.
    - If liquid has been spilled or objects have fallen into the product.
    - If the product has been exposed to rain or water.
    - If the product has been dropped or the cabinet has been damaged
    - If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
    - When the product exhibits a distinct change in performance. This indicates a need for service.
3. **Replacement Parts -** When replacement parts are required, have the service technician verify that the replacements used have the same safety characteristics as the original parts. Use of replacements specified by the product manufacturer can prevent fire, electric shock, or other hazards.
4. **Safety Check -** Upon completion of any service or repairs to this product, ask the service technician to perform safety checks recommended by the manufacturer to determine that the product is in safe operating condition.

1.4 Use

1. **Cleaning -** Unplug the product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
2. **Product and Cart Combination -** When product is installed on a cart, product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.
3. **Object and Liquid Entry -** Never push objects of any kind into this product through openings as they may touch dangerous voltage points or “short-out” parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
4. **Lightning -** For added protection of this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power line surges.

2 LH160 Series Features

Features

- Tablet / smartphone viewing and playback[1].
- Lorex Stratus Connectivity - 3 step setup.
- Superior 960H Resolution - 34% more detailed and true-to-life images[2].
- Real-time recording at 30fps per channel.
- 24/7 security-grade hard drive.
- Instant email alerts with snap shot attachment.
- Continuous, scheduled and motion recording.
- Advanced mobile apps with live viewing, playback, video recording, and snap shot.
- PC and Mac compatible.
- H.264 video compression[3].
- HDMI cable included for simple connection to HDTVs[4].
- Pentaplex operation - view, record, playback, back up & remotely control the system simultaneously.
- PTZ cameras supported (RS485). Remotely control through App.
- Accurate time stamps with NTP & Daylight Savings Time.
- 3 video outputs (HDMI, VGA and BNC) to connect multiple monitors.
- Automatic firmware upgrades over Internet ensure your system is secure and up to date[5].

Note

1. Requires a high speed internet connection and a router (not included). An upload speed of 1Mbps is recommended for the best video performance. Up to 3 devices may connect to the system at the same time. For the latest list of supported apps and devices, check www.lorextechnology.com/support.
2. Optimized when used with 960H compatible cameras. DVR is backwards compatible and supports different camera inputs: standard resolution and 960H.
3. High definition recording not supported, recording resolution is limited to a maximum of 960x480 per channel. Image quality and resolution is dependent on the type of camera connected to the DVR.
4. Recording time may vary based on recording resolution & quality, lighting conditions and movement in the scene.
5. Both firmware and software must be updated to latest version to ensure remote connectivity. Always update to the latest software (available at www.lorextechnology.com) after upgrading the DVR firmware.

Use product in accordance with the instructions provided. All trademarks belong to their respective owners. No claim is made to the exclusive right to use the trademarks listed, other than the trademarks owned by Lorex Corporation. We reserve the right to change models, configurations or specifications without notice or liability. Product may not be exactly as shown. Images are simulated.

3 Getting Started (LH160 Series)

The system comes with the following components:

DVR (Digital Video Recorder)

12V DC Power Supply

Remote Control
(may not be exactly as shown)

USB Mouse

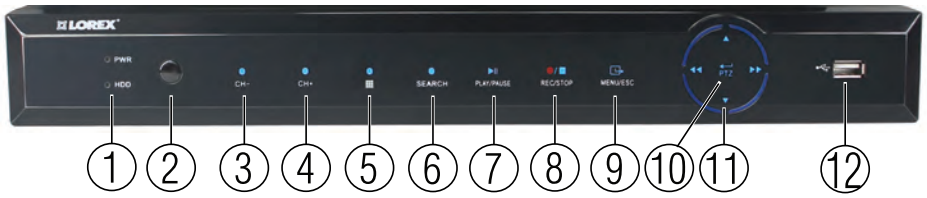
Ethernet Cable

HDMI Cable

Quick Start Guides

Hard drive size, number of channels, and camera configuration may vary by model. Please refer to your package for specific details. Check your package to confirm that you have received the complete system, including all components shown above.

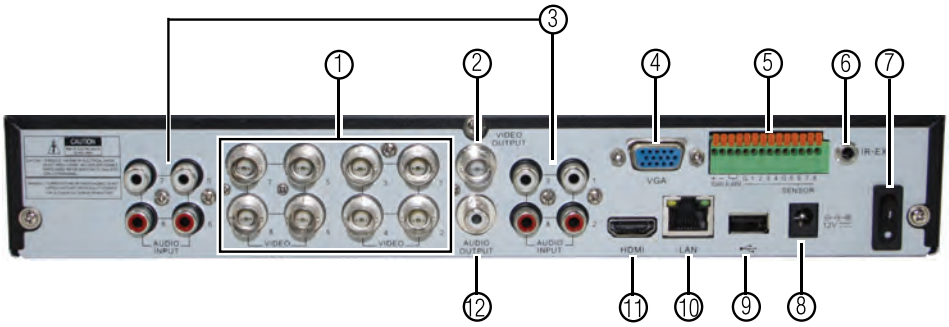
4 Front Panel (LH160 Series)



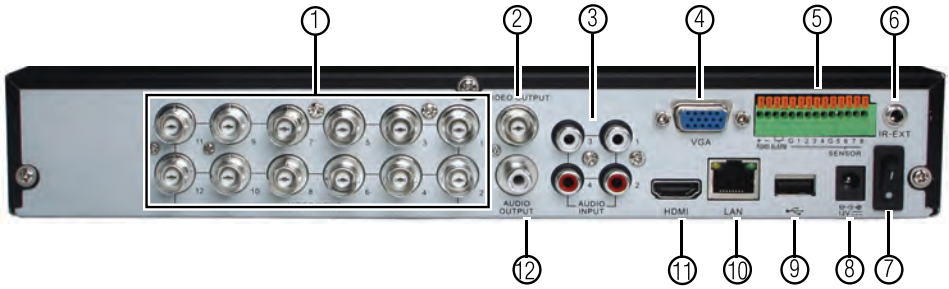
1. **LED Indicators**:
   - **PWR** : Power LED.
   - **HDD**: Hard disk activity LED.
2. **IR Sensor**: IR receiver for the remote control.
3. **CH-**: Press to select the previous channel.
4. **CH+**: Press to select the next channel.
5. : Press repeatedly to switch between split-screen viewing modes.
6. **SEARCH**: In live view, press to open the Search Menu to select playback time.
7. **PLAY/PAUSE**: In playback mode, press to pause/resume playback.
   - In live view, press to open the Search Menu to select playback time.
8. **REC/STOP**: Press to stop/resume recording. System password required. When the channel displays a red box with the letter "C", the channel is recording.
9. **MENU/ESC**: Opens the system menu. In menus, press to go back/exit menus.
10. **/PTZ**:
    - **Within system menus**: Press to confirm a selection.
    - **To open the System Information window**: In live viewing mode, press once.
    - **To open PTZ Controls**: In live view, press once and release then press and hold.
11. **Navigation Buttons**:
    - : Move the cursor up.
    - : Move the cursor down.
    - : Move the cursor right.
      - In playback, fast forward/increase fast forward speed.
    - : Move the cursor left.
      - In playback, rewind/increase rewind speed.
12. **USB Port**: Connect a USB mouse (included) or USB flash drive (not included) for data backup or firmware updates.

5 Rear Panel (LH160 Series)

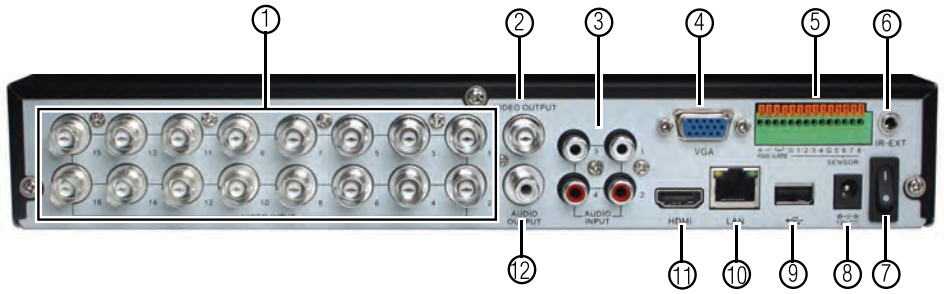
8–Channel



12–Channel



16–Channel



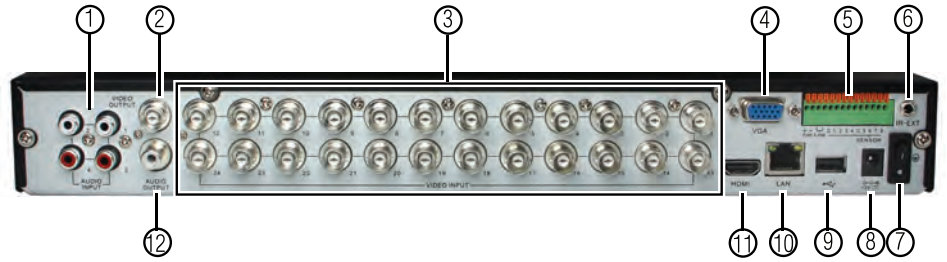
1. **Video Input**: Connect BNC cameras.
2. **Video Output**: Outputs the DVR interface to a BNC connection. This allows you to see your mouse cursor and have full control of the system on a secondary monitor. To switch the mouse and system interface between BNC and VGA/HDMI monitors, press **0** three times on the remote control.

   Note
   Use a BNC to RCA adapter (not included) to connect the DVR to RCA inputs (i.e. for a TV connection).

3. **Audio Input**: Input for RCA audio-enabled cameras (not included).
4. **VGA**: Connect a VGA monitor (not included) to view the system interface.
5. **RS485/Alarm Block**: Connect compatible PTZ cameras (not included) or alarm sensor devices (not included).
6. **IR EXT:** Service only; not supported.

7. **On / Off Switch**: Turns the DVR on or off.
8. **DC12V**: Connect the included AC power adapter.
9. **USB Port(s)**: Connect a USB mouse (included) or USB flash drive (not included) for data backup or firmware updates.
10. **LAN**: Connect a CAT 5 RJ45 Ethernet cable for local and remote connectivity.
11. **HDMI**: Connect to an HDMI monitor or TV (not included) to view the system interface.
12. **Audio Output**: Output for 1 RCA audio channel (e.g. speakers).

24–Channel



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> **Note**
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8. **DC12V**: Connect the included AC power adapter.
9. **USB Port(s)**: Connect a USB mouse (included) or USB flash drive (not included) for data backup or firmware updates.
10. **LAN**: Connect a CAT 5 RJ45 Ethernet cable for local and remote connectivity.
11. **HDMI**: Connect to an HDMI monitor or TV (not included) to view the system interface.
12. **Audio Output**: Output for 1 RCA audio channel (e.g. speakers).

6 Basic Setup (LH160 Series)

6.1 Step 1: Connect the BNC Cameras

- Connect BNC cameras to the **Video Input** ports on the rear panel of the DVR.

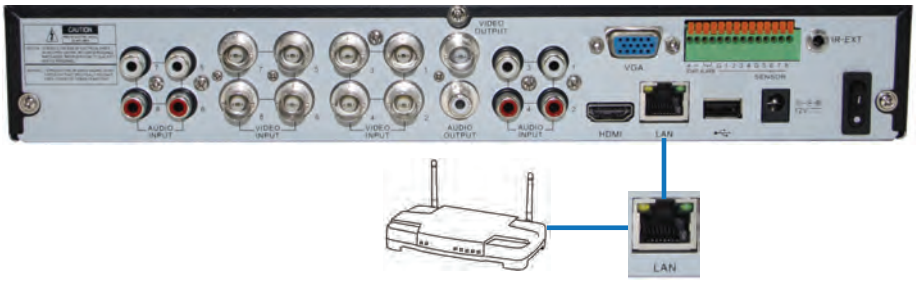
Push and twist the BNC connector clockwise to secure it to the BNC port

6.2 Step 2: Connect the Mouse

- Connect a USB mouse (included) to one of the **USB** ports.

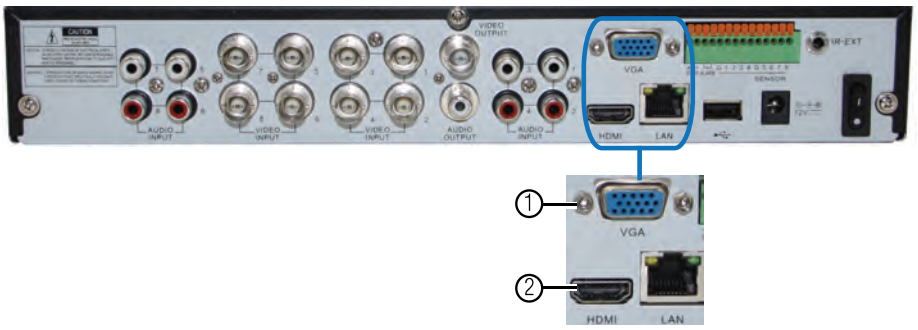
6.3 Step 3: Connect the Ethernet Cable

- Connect an Ethernet cable (included) to the **LAN** port on the rear panel of the DVR. Connect the other end of the Ethernet cable to a router on your network.



6.4 Step 4: Connect the Monitor

- Connect the included HDMI cable from the **HDMI** port to the TV or monitor (recommended).
  OR
- Connect a VGA cable (not included) from the **VGA** port to the monitor.



1. VGA port.
2. HDMI port.

6.5 Step 5: Connect the Power Adapter and Power on the DVR

1. Connect the included power adapter to the **DC 12V** port. Connect the end of the power adapter to a wall socket or a surge protector.
2. Turn the power switch to **I** to turn on the DVR.

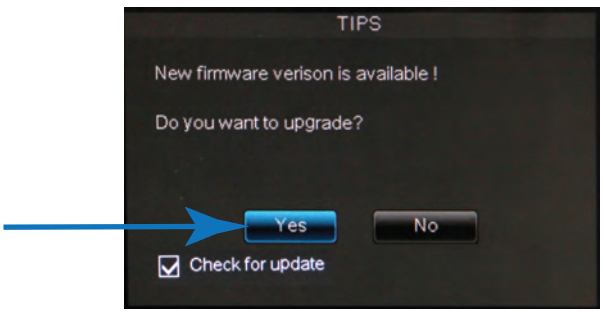
At startup, the system performs a basic system check and runs an initial loading sequence. After a few moments, the system loads a live display view.

6.6 Step 6: Upgrade Firmware to Latest Version (if Available)

If a firmware upgrade is available, you will be asked to install it once the DVR starts up. It is required to upgrade your system firmware and client software or mobile apps to the latest version to enable remote connection to the system.

If a firmware upgrade is available:

1. After startup, a notification will appear asking you to upgrade the firmware. Click **Yes** to upgrade.



2. Enter the system user name (default: **admin**) and password (default: **000000**) and click **Apply**. Wait for the firmware update to complete. The system will restart once the firmware has been upgraded.

⚠ WARNING
DO NOT POWER OFF THE DVR OR DISCONNECT THE POWER CABLE DURING FIRMWARE INSTALLATION

6.7 Step 7: Verify Camera Image

- Power on the cameras, and then verify the camera video quality before mounting the cameras to a permanent location.
- Mount the cameras under a sheltered location. Always verify the outdoor rating of your camera before installing it in a permanent location.

6.8 Step 8: Set the Time

- Set the system time and date for accurate video time stamps. Videos with inaccurate times may not be valid as surveillance evidence.
- For details on setting the system time, see 10 *Setting the Date and Time*, page 23.

6.9 Default System Password & Port Numbers

⚠ CAUTION
By default, the system user name is **admin** and the password is **000000**. It is essential that you create your own password. For details, see 14 *Managing Passwords*, page 36.

The system requires a user name and password to log in to the system remotely using a computer or mobile device. After logging on remotely the first time, you will be asked to create a custom password for the system.

Local DVR and remote connectivity (LAN & Internet) user name and password:

- Username: **admin**
- Password: **000000**

Default ports for DDNS remote access:

- Port **80** (HTTP port)
- Port **9000** (Client port)

6.9.1 Lorex Stratus Connectivity

This system features the exclusive Lorex Stratus Connectivity. This is a cloud service that allows you to connect to your system over the Internet via a secure handshake with Lorex's servers. This means you can easily connect to your system without requiring any network configuration.

For details on setting up your system to connect to the Internet using Lorex Stratus Connectivity:

- See 16 *Connecting to Your DVR Over the Internet on PC or Mac*, page 70.
  OR
- See 18 *Mobile Apps: Accessing your DVR Using a Mobile Device*, page 96.

Connectivity using Lorex's free DDNS service is also available, but requires the ports listed above to be port forwarded on your router.

6.10 Quick Access to System Information

To quickly open a window that displays vital system information:

- Press the button on the front panel or remote control to open the System Information window.
  OR
- Right-click and then click the **Main Menu button ( )**. Login using the DVR user name and password (the default user name is **admin**, and the default password is **000000**). Then click **System>Info**.

6.11 Connecting Cameras

CAUTION

Cameras differ in terms of installation or mounting instructions. Please see the documentation that came with your camera(s) for specific installation instructions.

Test the cameras before permanent installation. Plan where you will route the wiring for the camera and where you will aim the camera.

Installation Tips

- Mount the camera where the lens is away from direct and intense sunlight.
- Plan your cable wiring so that it does not interfere with power lines or telephone lines.
- Ensure that the camera wiring is not exposed or easily cut.
- Mount the camera in an area that is visible, but out of reach.
- Avoid pointing the camera at a glass window to see outside, as this may result in a poor image caused by glare from indoor / outdoor lighting conditions.
- Adjust the camera angle so that it covers an area with high traffic.
- In "high-risk" locations, have multiple cameras point in the same area. This provides camera redundancy if a vandal attempts to damage the camera.

6.11.1 Installing Cameras

1. Mount the camera(s) to the desired mounting surface according to the instructions that came with the camera(s). Choose a firm mounting surface.

   Note
   If you wish to mount cameras to drywall, it is recommended to use drywall anchors (not included).

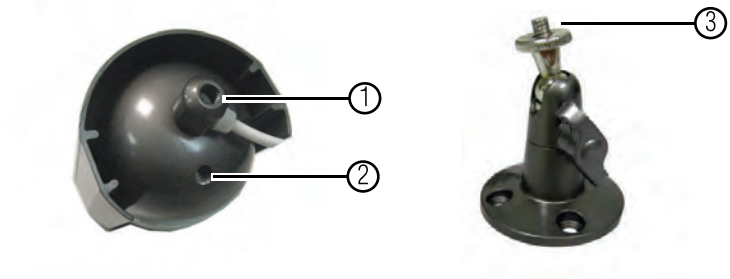
2. Adjust the camera stand to ensure that the camera has a satisfactory view of the area you would like to monitor. Stand configuration depends on the mounting surface you have chosen (see below for suggested stand configurations).

Table Mount

Wall Mount

Ceiling Mount

There are two connection points for certain cameras. Secure the stand to the top thread for wall mounts or ceiling mounts. Secure the stand to the bottom thread for table mounts or wall mounts.



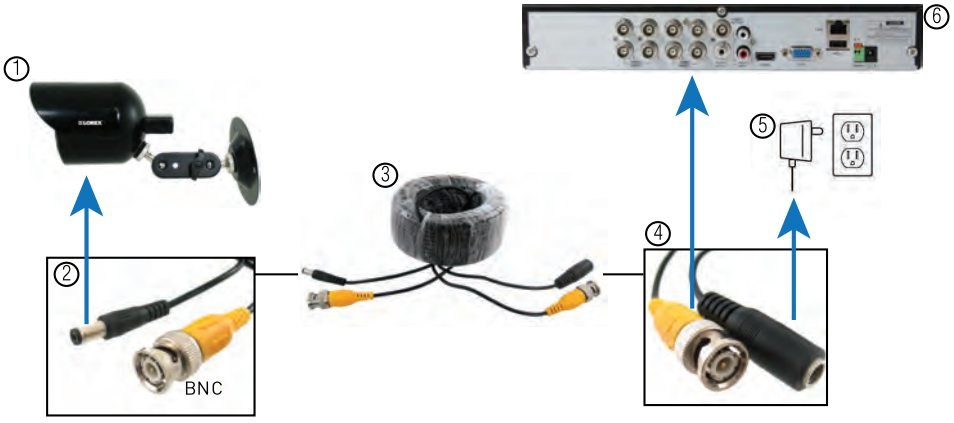
1. Top Thread (Ceiling Mount, Wall Mount).
2. Bottom Thread (Table Mount).
3. Secure to camera thread.

Note
Camera model may not be exactly as shown.

6.11.2 Connecting BNC Cameras to your DVR

1. Connect the male power connector on the BNC extension cable to the female power connector on the camera.
   - Connect the BNC connector to the camera.
2. Connect the female power connector on the BNC extension cable to the power adapter.
3. Connect the BNC connector to one of the **Video Input** ports on the rear panel of the DVR.
4. Plug the camera power adapter to a power outlet.

Camera Installation Diagram



1. Camera.
2. End of extension cable with male power connector.
3. Extension cable.
4. End of extension cable with female power connector.
5. Camera power adapter.
6. DVR.

6.11.3 Connecting and Removing BNC Cables

BNC (Bayonet Nut Connector) is a special connector that locks on to the system port and cannot be accidently removed.

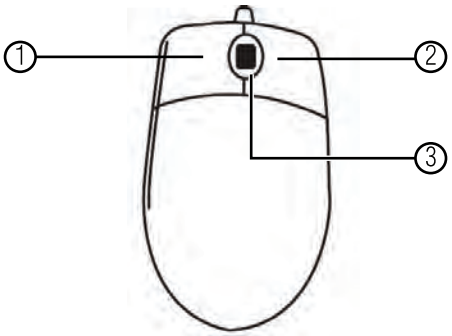
To connect or remove a BNC connector:

- Push the BNC connector firmly into the BNC port and simultaneously twist the connector clockwise to tighten.
- To remove a BNC connector from a BNC port, push and simultaneously twist the connector counter-clockwise to loosen the BNC connector.

7 Mouse Control

The DVR is designed for mouse navigation. To use a USB mouse (included), connect the mouse to a **USB** port on the DVR.

Use the mouse buttons to perform the following:

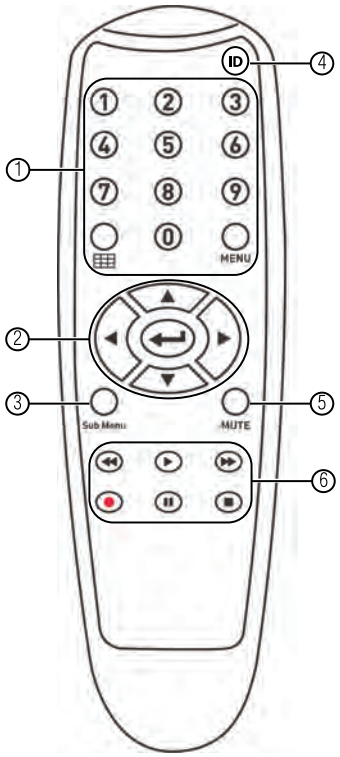


1. **Left-Button:**
   - Click to select a menu option.
   - During live viewing in Split-screen View, double-click on a channel to view the selected channel in full-screen; double-click the channel again to return to Split-screen View.
2. **Right-Button:**
   - Click to open the Menu Bar (see 9.1 *Using the Menu Bar*, page 19).
   - In menus, use the right-button to go back / exit menus.
3. **Scroll-Wheel:** No function.

8 Remote Control

You can also control the DVR using the included remote control.

8.1 8/12/16–Channel Remote Control



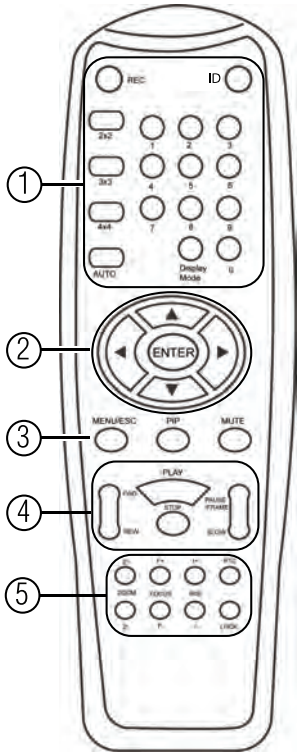
1. **Number keys (1~0)**: Press to select the desired channel in Full-screen View. Press 1 +0 for channel 10, 1+1 for channel 11, etc.
   - : In Live Viewing Mode, press to open split-screen view. Press repeatedly to switch between split-screen viewing modes.
   - **MENU**: Press to open the Main Menu. In menus, press to go back/exit menus.
   - **0**: Press **0** three times to show the mouse cursor on the BNC monitor or the monitor connected with VGA/HDMI.
2. **Navigation cursors**: Press to navigate menus.
   - : Press to select menu items. In Live Viewing Mode, press to access System Information.
3. **SUB MENU**: Press to open the Menu Bar.
4. **ID**: Used to pair the remote control to a specific DVR. For details, see 15.7.8 *Setting the Remote Control ID*, page 63.
5. **MUTE**: Press to mute/un-mute audio during Live Viewing and Playback Mode. Audio-capable cameras (not included) are required for audio recording and listen-in audio functionality.

6. **Playback controls**:

- : In Playback Mode, press to fast forward/increase fast forward speed.
- : In Playback Mode, press to rewind/increase rewind speed.
- : In Live Viewing Mode, press to open the Search Menu to select video for playback.
  - In Playback Mode, press to play video.
- : In Live Viewing Mode, press to start Sequence Mode.
  - In Playback Mode, press to pause video. Press repeatedly to step through video frames.
- : Press to stop recording. Password required; does not override scheduled recording.
- : Record: Press to resume recording after recording has been stopped. Password required.

Note
When using the remote control to enter password and camera titles, select the field using the navigation buttons, press , and then press the number buttons.

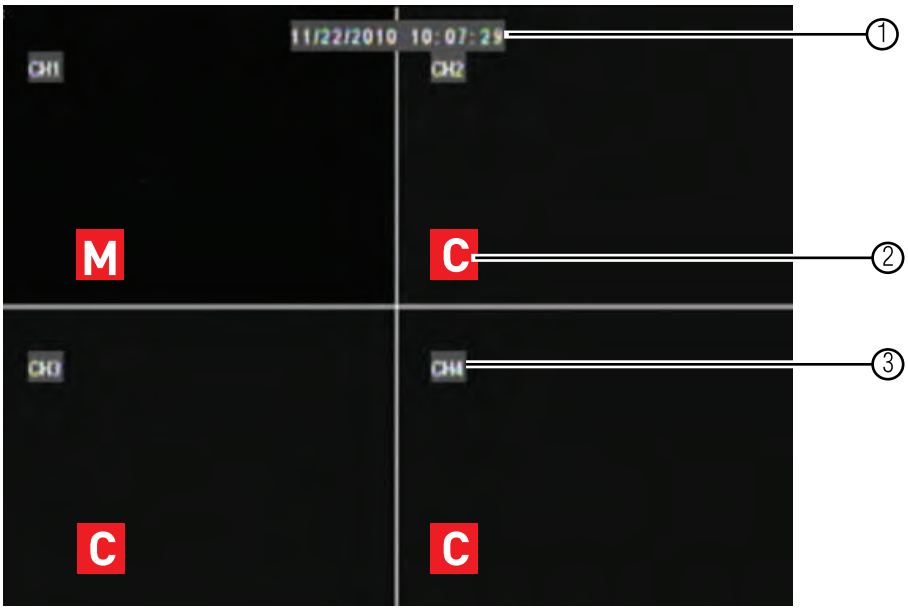
8.2 24–Channel Remote Control



1. **REC:** Press to resume recording after recording has been stopped.
   - **Number keys (1-0)**: In Live Viewing Mode, press to open the desired channel in Full-screen view. Press 1+0 for channel 10, 1+1 for channel 11, etc.
   - **0**: Press **0** three times to show the mouse cursor on the BNC monitor or the monitor connected with HDMI/VGA.
   - **Display Mode**: In Live Viewing Mode, press repeatedly to switch through split-screen viewing modes.
   - **2x2 / 3x3 / 4x4**: In Live Viewing Mode, press to open the corresponding split-screen view. Press repeatedly to change channels shown in split-screen.
   - **AUTO**: Press to start/stop Sequence Mode.
   - **ID**: Used to pair the remote control to a specific DVR. For details, see 15.7.8 *Setting the Remote Control ID*, page 63.
2. **Navigation cursors**: Press to navigate menus.
   - **ENTER**: In menus, press to confirm selections.
     - In Live Viewing Mode, press to access System Information.
3. **MENU/ESC**: Press to open the system menu. In menus, press to go back/exit menu.
   - **MUTE**: In Live Viewing and Playback Modes, press to mute/un-mute audio.
   - **PIP**: In Live Viewing Mode, press once to open Picture in Picture (PIP) 1X1 or twice to open PIP 1X2. Mouse is required to change channels shown in PIP.
4. **Playback controls**:
   - **FWD**: In Playback Mode, press to fast forward/increase fast forward speed.
   - **REW**: In Playback Mode, press to rewind/increase rewind speed.
   - **PLAY**: In Playback Mode, press to play / pause video.
     - In Live Viewing Mode, press to open the Record Search Menu.
   - **STOP**: In Playback Mode, press to pause playback.
     - In Live Viewing Mode, press to stop recording. Password required; does not override scheduled recording.
   - **SLOW**: In Playback Mode, press to play video in slow motion. Press repeatedly to change slow motion playback speed.
   - **PAUSE/FRAME**: In Playback Mode, press to pause. Press repeatedly to view recordings frame by frame.

9 Using the On-Screen Display

Use the system's graphical on-screen display to navigate menus and configure options and settings.



1. **Date & Time**: Displays the date and time on the system
2. **Record Status**: Displays the current recording status of the system: **C** = continuous (normal recording); **M** = motion recording; **A** = alarm recording (only available on models that have alarm/sensor support; alarm/sensor devices are required and are not included).
3. **Channel Number/Channel Title:** Displays channel number or channel title. To rename the channel number to a title, see 15.1.1 *Configuring Custom Channel Names*, page 41.

Note

If you can't see your mouse cursor on screen:

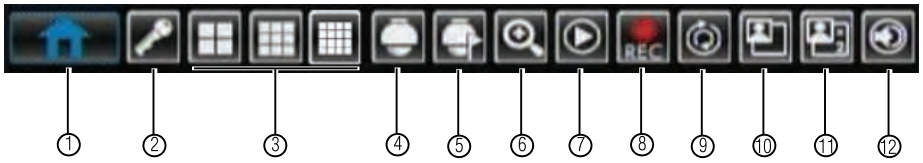
Press **0** on the remote control three times to switch the mouse and system interface between VGA/HDMI and BNC monitors.

9.1 Using the Menu Bar

The Menu Bar allows you to access the Main Menu and control basic functions of the DVR.

To access the Menu Bar:

- Right-click or move the mouse cursor to the bottom of the screen to access the Menu Bar.



1. **Main Menu**: Opens the Main Menu.
2. **Lock**: Click to log out if a user is currently logged in.

3. **Split Screen buttons**: Select the desired split-screen mode (available options depend on the number of channels your DVR has).
4. **PTZ**: Opens the PTZ controls.
5. **Start/Stop PTZ Cruise**: Start or stop the PTZ cruise function.
6. **Zoom**: Opens digital zoom. Must be in Full-screen / Live Viewing Mode.
7. **Record Search**: Opens the DVR Search Menu. This allows you to search for video recorded on the DVR.
8. **Start/Stop Recording**: Start or stop DVR recording on all channels. Password required; does not override scheduled recording.
9. **Start/Stop SEQ**: Start or stop Sequence Mode. In Sequence Mode, DVR automatically switches between channels every few seconds.
10. **PIP 1X1**: Enable Picture in Picture Mode with one camera in full screen and one in a small window.
11. **PIP 1X2**: Enable Picture in Picture Mode with one camera in full screen and two in small windows.
12. **Volume**: Adjust the DVR volume (audio-capable cameras required, not included).

9.2 Using the Virtual Keyboard and Mini-Keyboard

You can input numeric or text values using the on-screen virtual keyboard. You will need to use the Virtual Keyboard when entering your User ID and Password. The Virtual Mini-Keyboard is used to input numeric values, such as the time and date.

To use the Virtual Keyboard:

1. Using the mouse, click on an option or field, such as the User ID and Password fields.
   - The Virtual Keyboard opens.

   - Click **Shift** to switch between upper and lowercase letters.
   - Click ◀ ▶ to move the cursor between letters.
   - Click **<—** to backspace/delete.
   - Click **Enter** to enter your selection.
   - Click **ESC** to close the virtual keyboard.

To use the Virtual Mini-Keyboard:

1. Using the Mouse, click on an option or field, such as the Time or Date fields.
   - The Virtual Mini-Keyboard opens.

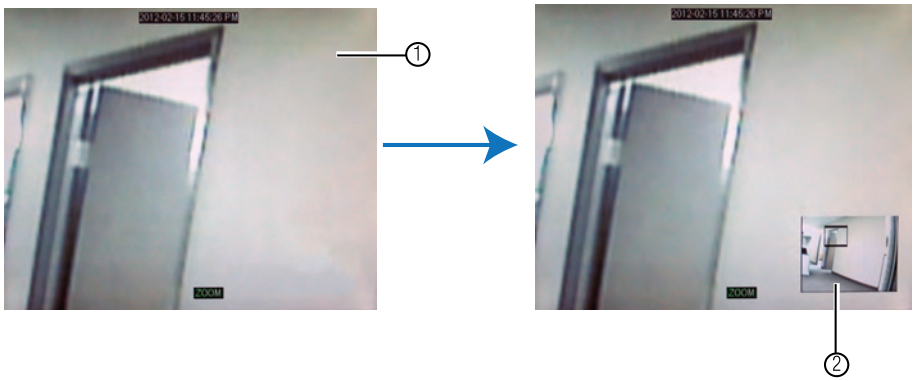
   - Click to enter your selection.

9.3 Using the Zoom Mode

Zoom Mode allows you to zoom in on an image while viewing your cameras live. This can be useful if you want to get a closer look at a situation.

To use the Zoom Mode:

1. In Live Viewing Mode, select the channel you want to zoom in on in full-screen (double-click the channel if you are in a Split-screen View).
2. Right-click to open the Menu Bar and select the Zoom button ( ). A Zoom icon appears on the screen.



   2.1. Click and drag on the area of the screen you would like to enlarge. The image zooms in on the selected area.
   2.2. The box in the lower right-hand corner shows the entire camera picture with a black box around the zoomed-in area. Click inside the box and drag to move the zoom area.

3. Right-click to exit and select a different zoom area. Right-click again to exit Zoom Mode and return to Live Viewing Mode.

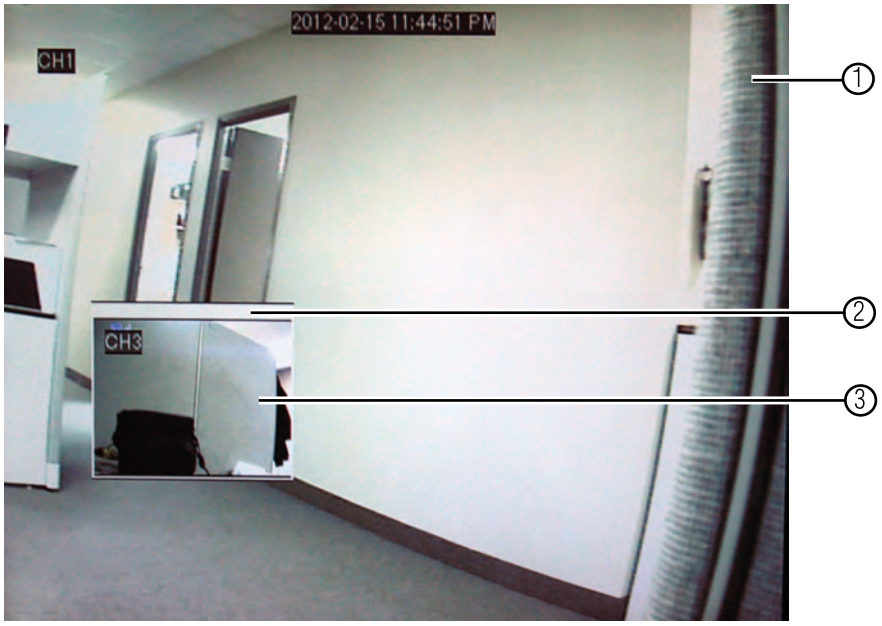
9.4 Using Picture in Picture (PIP) Mode

Picture in Picture (PIP) Mode allows you to view one channel in full-screen while viewing up to two other channels.

To use Picture in Picture Mode:

1. Right-click to open the Menu Bar and select the PIP1X1 button ( ) or PIP1X2 button ( ). PIP1X1 shows one channel in full screen and one other channel; PIP1X2 shows one channel in full screen and two other channels.

2. Picture in Picture Mode opens.



2.1. To change the full-screen channel, click anywhere in the main viewing area.
2.2. To move the smaller channels around the screen, click inside the white bar and drag.
2.3. To change the smaller channels, click inside the channel.
2.4. Right-click to exit and return to Live Viewing Mode.

10 Setting the Date and Time

CAUTION

It is highly recommended to set the date and time when first setting up your system.

Inaccurate time stamps may render your footage unusable for court evidence.

1. Right-click or move your mouse to the bottom of the screen to open the Menu Bar and click the Main Menu button ( ).
2. Enter the system user name (default: **admin**) and password (default: **000000**) and click **Apply**.
3. Click **System**.

4. Configure the following:
   - **Date**: Click inside the field and enter the month, date, and year.
   - **Time**: Click inside the field and enter the time.
   - **(Optional) Date Format**: Use the drop-down menu to select **MM/DD/YY**, **DD/MM/YY**, or **YY-MM-DD**.
   - **(Optional) Time Format**: Use the drop-down menu to select **12HOURS** or **24HOURS**.
   - **(Optional) DST**: Click the **Setup** button next to DST to configure automatic Daylight Savings Time adjustments.
   - **(Optional) NTP**: Click the **Setup** button next to NTP to synchronize your DVR's time and date with a Network Time Protocol (NTP) time server. Lorex provides a free NTP service that automatically updates your DVR's time for Daylight Savings Time.

     Note
     A constant internet connection is required for the NTP server feature to function.

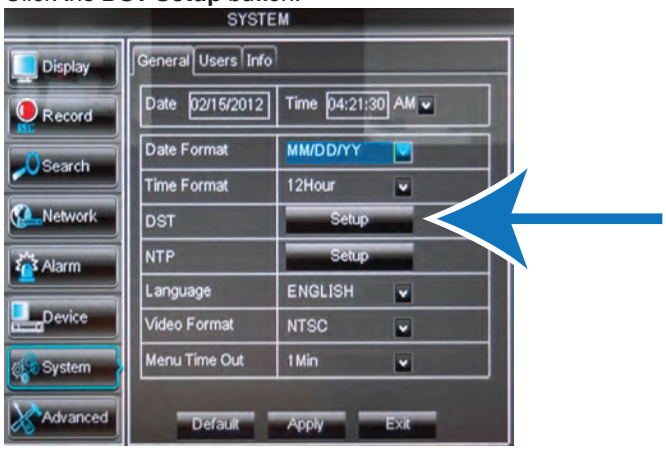
5. Click **Apply** to save your settings.

10.1 Configuring Daylight Savings Time (DST)

If your region observes Daylight Savings Time (DST), follow the instructions below to configure your DVR to automatically update the time when the clock updates.

To enable automatic DST adjustments:

1. Click the **DST Setup** button.



2. Configure the following:

- **Daylight Saving Time**: Select **Enable**.
- **Time Offset**: Select the number of hours the system should move forward or backward when DST occurs.
- **Daylight Saving Time Mode**: Select **Week** or **Date**. This allows you to select whether DST should begin and end at the beginning of the week or on a specific date.
- **Start Time, End Time**: Enter when DST starts and ends.

3. Click **Apply** to save your settings.

10.2 Using a NTP Server to set your System Time

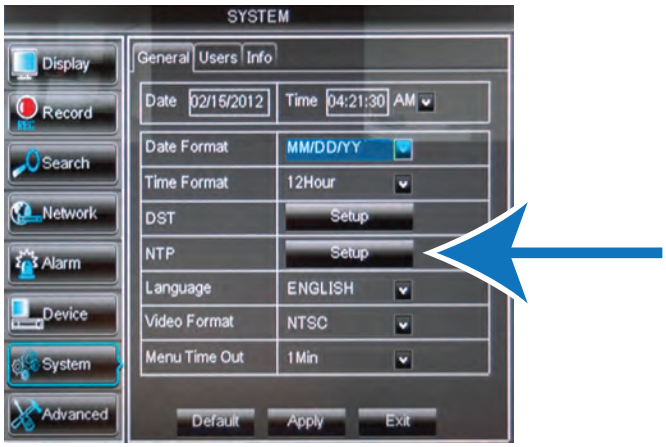
A NTP (Network Time Protocol) server syncs your system time with an online time server. Lorex provides a free NTP service that allows your DVR to automatically update the time for Daylight Savings Time.

Note
A constant Internet connection is required to use the NTP feature.

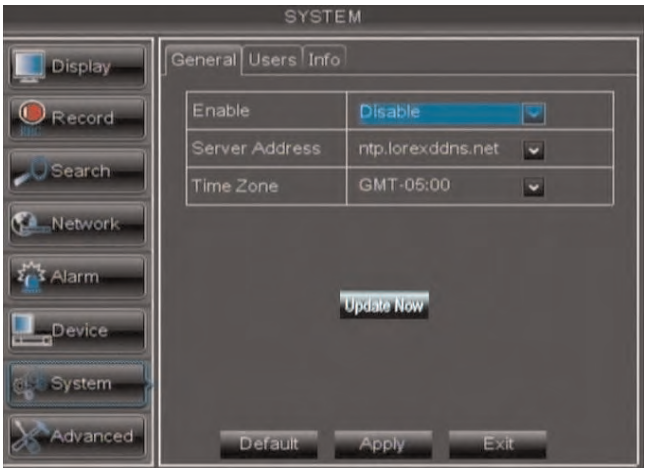
To enable NTP:

1. Right-click to open the Menu Bar and click the Main Menu button ( ).

2. Click **System**. Beside NTP, click **Setup**.



3. Configure the following:
   - **Enable**: Select **Enable**.
   - **Server Address**: Select **ntp.lorexddns.net**(recommended) as the time server or select another time server.
   - **Time Zone**: Select your region's time zone.



4. Click **Update Now** to connect to the time server.
5. Click **Apply** to save your settings.

11 Recording

By default, the system is set to immediately record video from connected cameras in Continuous Recording Mode.

- C **Recording—Continuous**: Normal, continuous recording.

You can set the system to stop recording once the hard drive is full, or to continually record by overwriting previously recorded data. For more details, see 15.6.1 *Formatting the Hard Drive*, page 60.

The system also includes motion recording:

- M **Recording—Motion**: The system records when motion is detected by the camera.

11.1 Recording Audio

The system can also record audio (check your model's specifications for the supported number of audio channels). You must have audio-capable cameras (not included) or self-powered microphones (not included) in order to record audio on the system.

For details, see 23 *Recording Audio (LH160 Series)*, page 138.

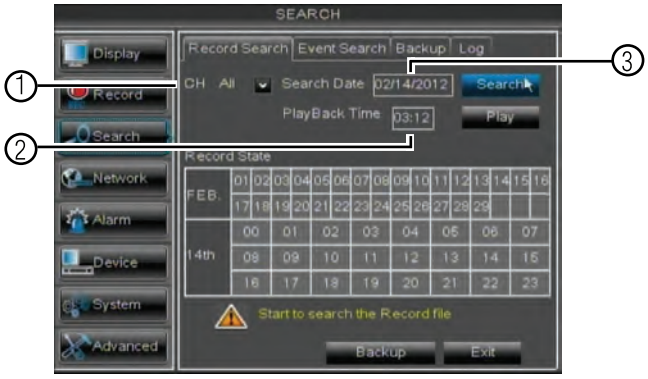
12 Playback

You can view and back up recorded video on the system through the Search Menu.

12.1 Playing Back Recorded Video

To playback a specific date and time:

1. Right-click to open the Menu Bar and click the Record Search button ( ).
2. Enter the system user name (default: **admin**) and password (default: **000000**) and click **Apply**. The Record Search tab opens.
3. Configure the following:



3.1. **CH**: Select the channel you wish to search. Select **All** to search all channels.
3.2. **Search Date**: Enter the month, date, and year you wish to search for video.
3.3. **Playback Time**: Enter the desired time you wish to search for video.

4. Click **Play** to select the exact time specified in Playback Time.
5. Select the channel or channels you want to play back and click **Play**.

To search for recorded footage on the DVR:

1. Right-click to open the Menu Bar and click the Record Search button ( ). The Record Search tab opens.
2. Configure the following:

- **CH**: Select the channel you wish to search. Select **All** to search all channels.
- **Search Date**: Enter the month, date, and year you wish to search for video.

3. Click the **Search** button. Your search results appear in the calendar. In the top portion of the calendar, results are shown for each day in the month. In the bottom portion, results are shown for each hour in the selected day.

   3.1. Click on a date in the calendar to see the video available for that date.
   3.2. Click on the hour of the video you want to play back.

4. Select the channel or channels you want to play back.

> **Note**
> The DVR may reduce the frame rate of recorded video when playing back more than one channel. Playback one channel at a time for the maximum frame rate.

5. Click **Play** to begin playback.

12.1.1 Using Playback Controls

This system features advanced playback controls that allow you to see when you have recorded footage and motion events on your cameras. They also allow you to use digital zoom in playback mode or take backups from short video clips.

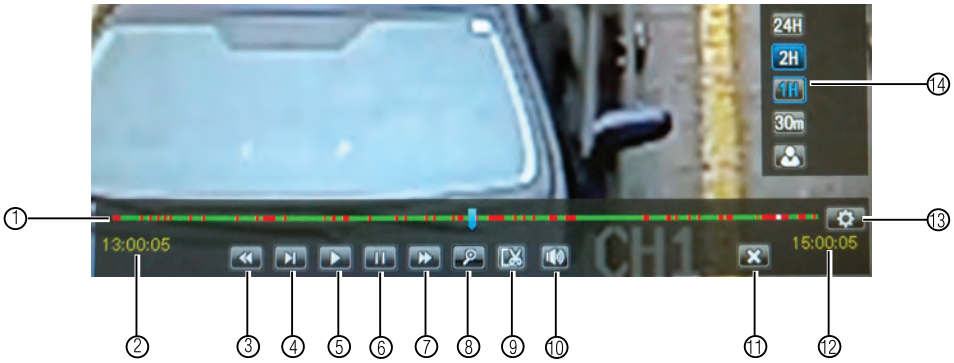
Different playback controls appear depending on the number of cameras you have selected to playback. All available controls appear when you playback from a single camera.

To use the advanced playback controls:

- Move the mouse slightly to display the on-screen playback controls. You can also use the playback control buttons on the remote control.
  Click the playback controls to play, pause, fast forward, rewind, and slow down playback.

  Click **X** or right-click to quit playback and return to the Search Menu.

Playback Controls



1. **Playback Bar**: Continuous recordings are shown in green. Motion recording is shown in yellow. Alarm recording is shown in red. If motion detection and alarm devices are triggered at the same time, the recordings are shown in blue.
2. **Start Time**: Shows the start time of footage currently in the Playback Bar.
3. **Rewind**.
4. **Slow**.
5. **Play**.
6. **Pause**.
7. **Fast Forward**.
8. **Zoom**.
9. **Video Clip Backup**.
10. **Mute**.
11. **Exit Playback**.
12. **End Time**: Shows the end time of footage currently in the Playback Bar.
13. **Show Playback Time Controls**.
14. **Change Time Range**: Click one of the options to select the range of times shown in the Playback Bar.

12.1.2 Finding Events in the Playback Bar

The advanced playback controls show the time and type of video footage available. Continuous recordings are shown in green. Motion recording is shown in yellow. Alarm recording is shown in red. If motion detection and alarm devices are triggered at the same time, the recordings are shown in blue.

Note
Motion detection or alarms must be enabled for each channel before they will be highlighted, see 15.5 *Alarm*, page 57 for details.

When up to four channels are selected for playback, multiple channels are shown.

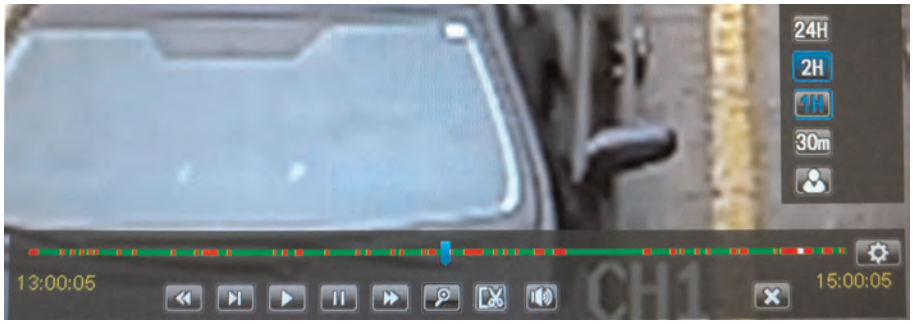
If more than four channels are selected, one bar is shown that combines all the selected channels. This means that video available on any selected channel will be shown in the bar.

12.1.3 Controlling the Time Range of the Playback Bar

The time range is the start and end times of the footage displayed in the Playback Bar. By default, the Playback Bar displays recordings recorded on the day selected for playback (from 00:00~24:00). You can change the time range to narrow in on a specific time.

To control the time range of the Playback Bar:

1. During Playback mode, click to open the time range controls.



2. Click **30m**, **1H**, **2H**, or **24H** to select a time range. For example, if 30m is selected, the playback bar will show 15 minutes before to 15 minutes after the currently playing time.
   OR

   To create a custom time range:

   2.1. Click . The button will become colored.

   2.2. Move your mouse to the time you where you would like the range to start and click. Then, move your mouse to the time you where you would like the range to end and click. The start and end times will be replaced by the 1st and 2nd times that you clicked on.

12.1.4 Using Zoom in Playback Mode

You can use Zoom in Playback Mode. This is useful if you need a closer look at recorded video.

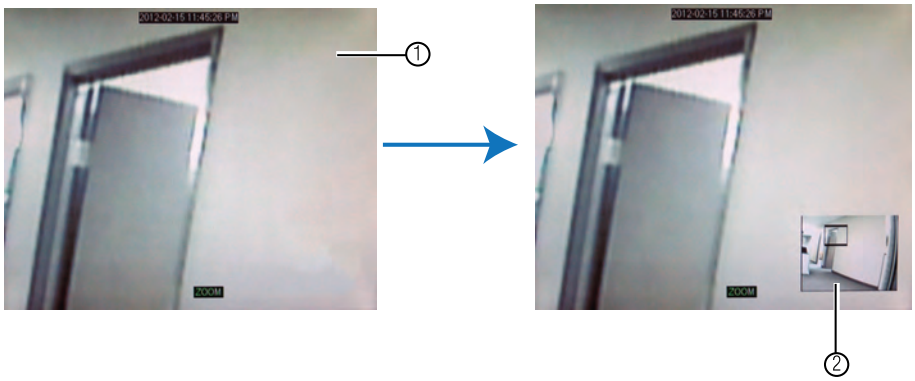
Note
Zoom is only available when a single channel is selected for playback.

To use zoom in Playback Mode:

1. Open Playback Mode with only one channel selected. For details, see 12.1 *Playing Back Recorded Video*, page 27.

2. Click to open Zoom.

Note
Playback controls are not available when Zoom is activated. If you want to pause the video before you zoom, you will have to pause it before entering Zoom.



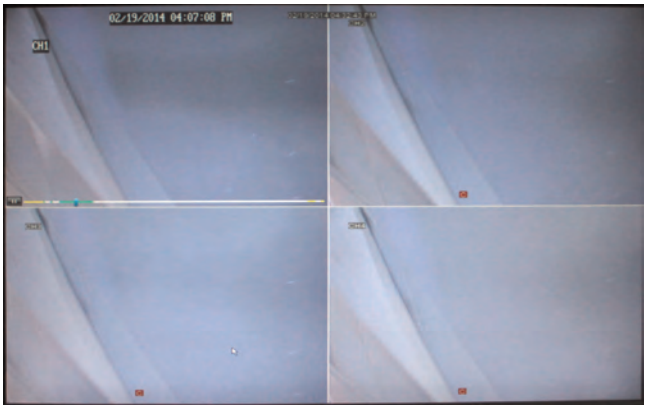
2.1. Click and drag on the area of the screen you would like to enlarge. The image zooms in on the selected area.

2.2. The box in the lower right-hand corner shows the entire camera picture with a black box around the zoomed-in area. Click inside the box and drag to move the zoom area.

3. Right-click to exit and select a different zoom area. Right-click again to exit Zoom Mode and return to Playback Mode.

12.2 Quick Playback

Quick Playback mode plays video from the last 30 minutes for the selected channel. Playback opens for the selected channel only, and live video continues on the other channels.



To use Quick Playback mode:

1. Move your mouse to the top of the channel you would like to view. A appears.

2. Click . Enter the system user name (default: **admin**) and password (default: **000000**). A playback window opens in the selected channel.

3. **To control playback:**

- Click inside the colored bar to fast forward/rewind within the last 30 minutes.
- Click to pause/restart playback.
- Right-click to exit playback.

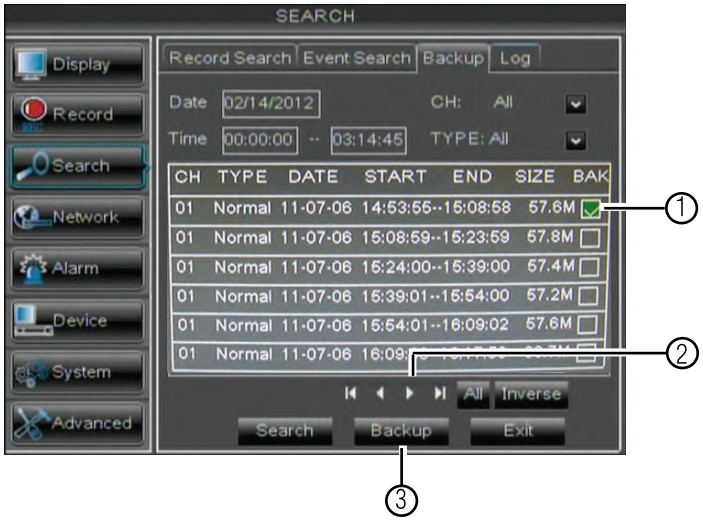
13 Backup

13.1 Backing Up Video

You can back up video to a USB flash drive (not included) connected to the DVR.

To back up video:

1. Connect a USB flash drive to one of the **USB** ports on the DVR.
2. Right-click to open the Menu Bar and click the Record Search button ( ).
3. Enter the system user name (default: **admin**) and password (default: **000000**) and click **Apply**.
4. Click the **Backup** tab.
5. Configure the following:
   - **Search Date**: Enter the desired month, date, and year.
   - **Search Time**: Enter the time range you wish to search.
   - **CH**: Select the channel you wish to search. To search all channels, select **All**.
   - **Type**: Select the type of recording you wish to search. Choose from **All, Normal** (Continuous), **Motion**, **Alarm**, or **A+M** (Alarm + Motion).
6. Click **Search**. A list of videos populate in the window.



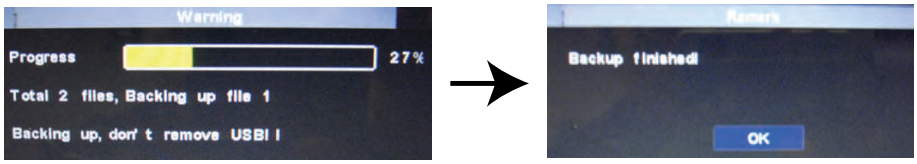
6.1. Click the **BAK** checkbox beside videos you wish to back up.

6.2. Click ◀ ▶ to change pages.

6.3. Click **Backup** to begin backing up the selected files.

7. Select the format you would like to use to save the video file. Select **AVI** for compatibility with common video players. Select **H264** for uncompressed video (requires Lorex video player software).

8. Click **Apply** to begin the backup.
   Wait for the backup to finish before removing the USB memory drive.



Note
For details on playing back video files, see 13.3 *Viewing Backed Up Video*, page 35.

13.2 Using Video Clip Backup

Video clip backup allows you to select a duration of video during playback mode and save it to a USB flash drive (not included).

Note
Video clip backup is only available when a single channel is selected for playback.

To create a backup video clip:

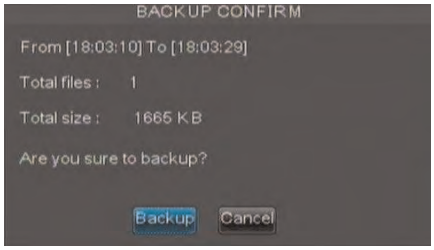
1. Connect a USB flash drive (not included) to one of the **USB** ports on the DVR.
2. Open Playback Mode with only one channel selected. For details, see 12.1 *Playing Back Recorded Video*, page 27.
3. Click the clip backup button ( ) to start your backup at the current playback time.

   Click to select the start and stop times.

4. When you want the backup clip to stop, click again.

Note
You can use fast forward or click-and-drag the video cursor to select the stop time for the clip. This is useful because it allows you to backup longer segments of video without having to watch the whole video each time. You must have enough space on your USB flash drive to save the file.

5. A confirmation window appears, showing information about the backup file you are about to create. Click **Backup** to confirm.



6. Select the format you would like to use to save the video file. Select **AVI** for compatibility with common video players. Select **H264** for uncompressed video (requires Lorex video player software).

7. Click **Apply** to begin the backup.
   Wait for the file to be saved before removing the USB flash drive from the system.

> **Note**
> For details on playing back video files, see 13.3 *Viewing Backed Up Video*, page 35.

13.3 Viewing Backed Up Video

You can use VLC Media Player to view video files saved to AVI. VLC media player is a free, open-source software. You can download VLC media player from www.videolan.org.

> **Note**
> VLC Media Player is not supported by Lorex.

To view video files saved to H264, you must install the Lorex Player software.

- For PC instructions, see 19 *Lorex Player 11: Playing Backed up Video on PC*, page 126.
- For Mac instructions, see 20 *Lorex Player for Mac: Viewing Backed up Video on Mac*, page 130.

14 Managing Passwords

Note

By default, the system user name is **admin** and the password is **000000**. Passwords are enabled by default and are required to access the Main Menu.

The password is required to log into the system remotely using a computer or mobile device. You will be prompted to create a custom password after you connect for the first time.

The system supports the following account types:

- **admin—system administrator**: has full control of the system, and can change both administrator and user passwords and enable/disable password protection.
- **user—normal user**: only has access to live viewing, search, playback, and other functions. You may set up multiple user accounts with varying levels of access to the system.

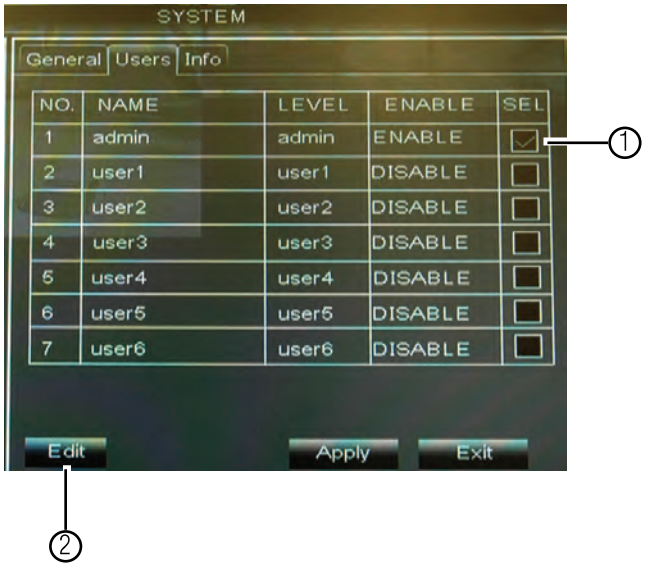
For security reasons, it is essential that you change the password on your system. **By default, the system password is enabled**.

14.1 Changing Passwords

You can change the system password of the admin and user accounts from the Users menu.

To change the admin password:

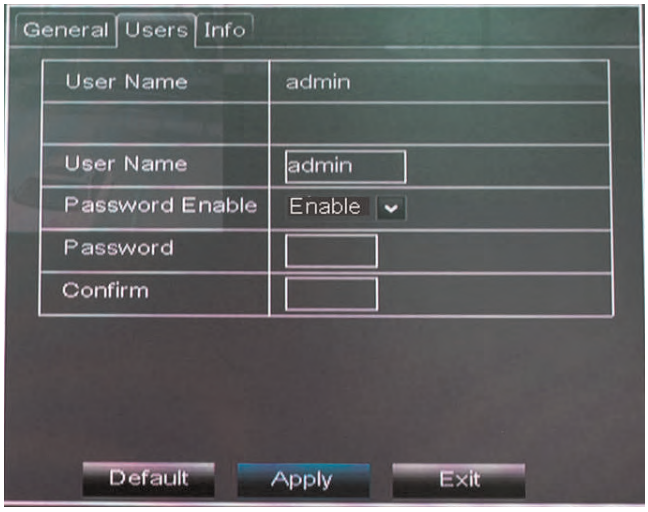
1. Right-click to open the Menu Bar and click the Main Menu button ( ). Enter the system user name (default: **admin**) and password (default: **000000**) and click **Apply**.
2. Click **System** and select the **Users** tab.



2.1. Select the checkbox beside admin.

2.2. Click the **Edit** button.

3. Configure the following:
   - **User Name**: Enter the desired admin user name.
   - **Password**: Enter your desired password.
   - **Confirm**: Re-enter the password.



4. Click **Apply** to save your settings.

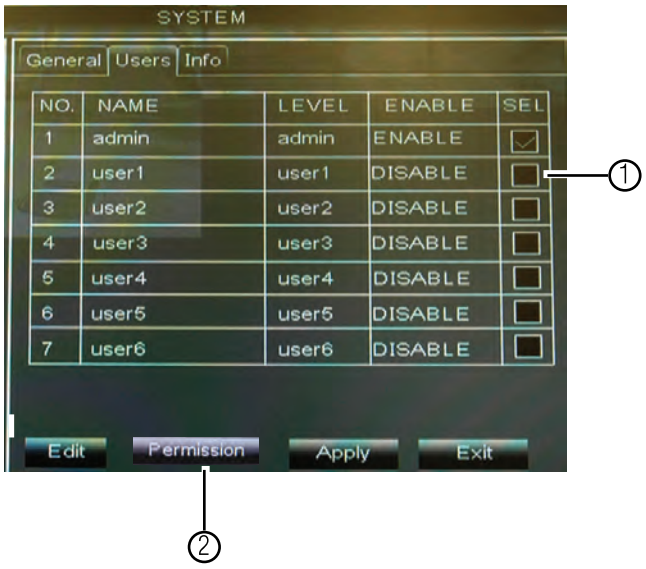
14.2 Adding Users

You can allow multiple users to log in to the system. When adding different users, you can assign what menus they have access to. For example, you may want your friend to monitor your system while you are away, while not giving full access to your system.

To add a new user:

1. Right-click to open the Menu Bar and click the Main Menu button ( ).

2. Click **System**> **Users**.



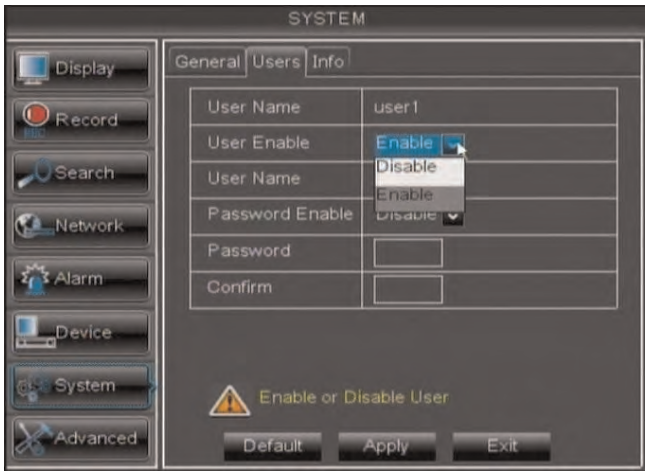
2.1. Select the checkbox beside user1 (or any other user account).
2.2. click the **Permission** button.

3. Select the menus and channels the user will have access to:

3.1. Select the menus the user account will be able to access.
3.2. Select the channels the user account will be able to access for each function. For example, if channel 1 is selected for Live, the user account will be able to view live video on channel 1.

4. Click **Apply** to save your settings.

5. Configure the following:
   - **User Name**: Enter the desired user name.
   - **User Enable**: Select **Enable** to enable the user account.
   - **Password**: Enter your desired password.
   - **Confirm**: Re-enter the password.



6. Click **Apply** to save your settings.

Now, you can log in to the system locally, or remotely using the user name and password you created. When logging into the system with a user account, the user will only have access to the menus you assigned.

15 Using the Main Menu

To open the Main Menu:

1. Right-click to open the Menu Bar and click the Main Menu button ( ).
2. Enter the system user name (default: **admin**) and password (default: **000000**) and click **Apply**.

- **Display**: Configure display options (e.g. camera color settings, camera title, video output).
- **Search**: Search for recorded video and log files on the system.
- **Alarm**: Configure motion detection and external alarm device settings.
- **System**: Configure system time and user accounts.
- **Record**: Configure recording settings and recording schedules.
- **Network**: Configure system network settings (e.g. email alert settings, video streaming quality settings).
- **Device**: Configure PTZ settings, HDD recording mode, HDD format option.
- **Advanced**: Perform firmware upgrades or configure automatic upgrades.

15.1 Display

The display menu allows you to configure camera image settings and video output settings.

Note
If you want to apply settings to all channels, use the "Copy To" drop-down menu, and select **All**. Click the **Copy** button to copy the setting across all channels.

15.1.1 Configuring Custom Channel Names

1. Select the **Live** tab.
2. In the **Channel** drop-down menu, select the channel that you wish to rename.

3. Click the **Name** field. Use the Virtual Keyboard to enter in the new channel name.
4. Click **Apply** to save your settings.

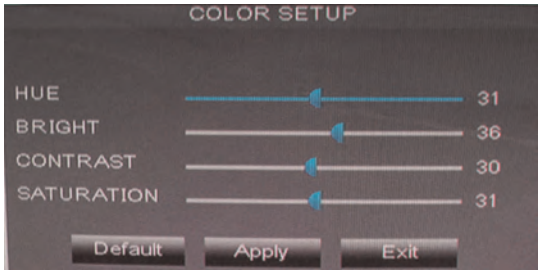
15.1.2 Changing the Position of the Channel Name

1. Select the **Live** tab.
2. In the **Channel** drop-down menu, select the channel you would like to configure.
3. In the **Position** drop-down menu, select where you would like the channel names to appear:
   - **U-L**: Upper left hand corner.
   - **D-L**: Lower left hand corner.
   - **U-R**: Upper right hand corner.
   - **D-R**: Lower right hand corner.
   - **Disable**: Do not display the channel name.
4. (Optional) Use the drop-downs next to **Copy** to copy settings to another channel or all channels. Click the **Copy** button to copy settings.
5. Click **Apply** to save your settings.

15.1.3 Adjusting Camera Color Settings

1. Select the **Live** tab.
2. In the **Channel** drop-down menu, select the channel that you wish to configure.

3. Click the **Setup** button next to Color. The Color Setup window opens.



4. Drag the slider to adjust the **Hue**, **Brightness**, **Contrast**, and **Saturation**.
5. Click **Apply** to save your settings.

15.1.4 Enabling Covert Recording

Covert Recording blanks out the screen so that it seems as if the system is not recording. Covert channels are only visible when the admin account logs in using a remote computer or mobile device.

To enable covert recording:

1. Select the **Live** tab.
2. In the **Channel** drop-down menu, select the channel you wish to hide.
3. In the **Covert** drop-down menu, select **Enable**.
4. Click **Apply** to save your settings.

15.1.5 Configuring the Time and Recording Time Display

To add/remove the time stamp in the system display:

1. In the **Show Time** and **Record Time** drop-down menu, select **enable** or **disable**.
2. Click **Apply** to save your settings.

15.1.6 Configuring Sequence Time

Sequence time refers to the amount of time a channel appears on the screen before changing to a different channel when the DVR is in Sequence Mode. For example, when Sequence Mode is on, channel 1 is shown for several seconds before switching to channel 2.

To configure the sequence time:

1. Click the **Output** tab.

2. Click the **SEQ Dwell time** field and enter the time channels remain on-screen before changing to another channel.
3. Click **Apply** to save your settings.

15.1.7 Changing the Video-out Resolution

1. Click the **Output** tab.
2. Click the drop-down menu beside **VGA/HDMI Resolution** and select the output resolution.
3. Click **Apply** to save your settings.
4. Right-click repeatedly to exit all menus. The DVR prompts you to restart. Click **OK**.
5. The DVR restarts and asks you to confirm the new resolution. Click **Yes** to confirm or **No** to revert to the old resolution. If you do nothing, the DVR will revert to the last selected resolution and restart.

Note
If you select a resolution that is greater than what your monitor supports, you may see a blank screen when your DVR restarts. If this occurs, do not do anything and wait until the DVR restarts.

If this does not correct the issue, press and hold the Stop (■) button on the front panel of the DVR until the DVR restarts. Your system resolution will default to 1024 x 768.

15.1.8 Restoring the System's Resolution if you see a Blank Screen

If you see a blank screen on your monitor after turning on your system, the DVR's output resolution may be higher than what your monitor supports. Follow the steps below to restore the DVR's default resolution to 1024 x 768.

To restore the DVR's default resolution:

1. Ensure the power and video cables are properly connected.

2. Press and hold the Stop (■) button on the front panel until the DVR restarts. The resolution will be reset to 1024 x 768 and the DVR will restart. When the DVR restarts, click **Yes** to confirm the default resolution.

> **Note**
> If your system resolution is already in 1024 x 768, pressing and holding the Stop button will not restart the system.

15.1.9 Adjusting Menu Transparency

You can increase or decrease the transparency of the on-screen menus.

To adjust the transparency of on-screen menus:

1. Click the **Output** tab.
2. Drag the **Transparency** slider to adjust transparency.
3. Click **Apply** to save your settings.

15.1.10 Adjusting the Video Margin

If you connect your DVR to a BNC monitor, you can adjust the video margins.

> **Note**
> You must select the BNC output mode to adjust the margins. Press **0** three times on the remote control to switch the output mode between BNC mode and VGA/HDMI mode. When BNC mode is selected, the mouse cursor appears on the BNC monitor.

To adjust the video margin:

1. Click the **Output** tab.
2. Click the **Margin** button.
3. Drag the sliders to the left or right to adjust the **Left**, **Right**, **Top**, or **Bottom Margin**.

4. Click **Apply** to save your settings and click **OK** to confirm.

15.1.11 Adding Privacy Zones

A privacy zone allows you to block out up to 4 portions of each channel with a black square.

⚠ **CAUTION**
Areas covered by privacy zones are not visible in recordings.

To configure a privacy zone:

1. Click the **Privacy Zone** tab.

2. In the **Channel** drop-down menu, select the channel you wish to configure.

3. Configure the following:
   - **Channel**: Select the channel you wish to configure.
   - **Privacy Zone**: Select **ON** to enable privacy zones or **OFF** to disable privacy zones.
   - **Area Setup**: Select the **Area1~4** checkboxes to enable up to 4 privacy zones.
4. Click the **Setup** button next to Mask Area. The Privacy Area setup screen opens.

   - Click on a privacy area and drag to change its location.
   - Click on the edge of a privacy area and drag to resize a privacy area.
   - Right-click when you are finished to exit.
5. (Optional) Use the drop-downs next to **Copy** to copy privacy areas to another channel or all channels. Click the **Copy** button to copy privacy areas.
6. Click **Apply** to save your settings.

15.1.12 Creating a Custom Split-screen Display

You can create a custom split-screen display and re-arrange where channels are placed.

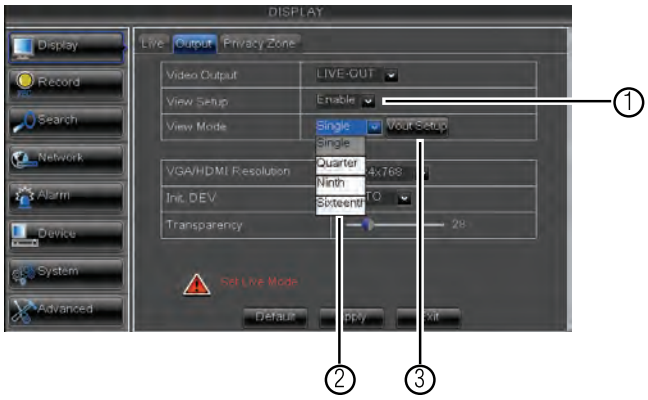
Note

You can create a custom split-screen display on a secondary monitor connected to the **Video Output** port (BNC) by doing the following.

- First, move the mouse and system interface to the Video Out monitor by pressing **0** three times on the remote control.
- Complete the procedure below.
- Press **0** three times on the remote control again to return the mouse and system interface to the VGA or HDMI monitor. Your custom display will be saved on the secondary monitor.

To re-arrange the split-screen display:

1. Select the **Output** tab.



1.1. Under **View Setup**, select **Enable**. This lets you select and arrange the channels you want to show on the screen.

Note

Enabling View Setup disables your ability to change channels the normal way on the selected monitor. You will need to disable View Setup to return to normal operation.

1.2. Under **View Mode**, select the desired viewing mode: **Single**, **Quad**, **Nine**, **Sixteen**, or **Twentyfive**.

Note

The options available depend on the number of channels your DVR has.

1.3. Click **Vout Setup**. A menu appears that allows you to select the arrangement of channels. Click the drop-down menus to select which channels to show on the screen and the arrangement of channels.

2. Click **Apply** to save changes. Click **Ok**. Right-click repeatedly to exit all menus and return to live viewing.

15.2 Record

The Record menu allows you to configure recording settings, such as the recording resolution, recording schedule, and audio recording.

15.2.1 Configuring Pre-recording Settings

1. Select the **Rec Para** tab.

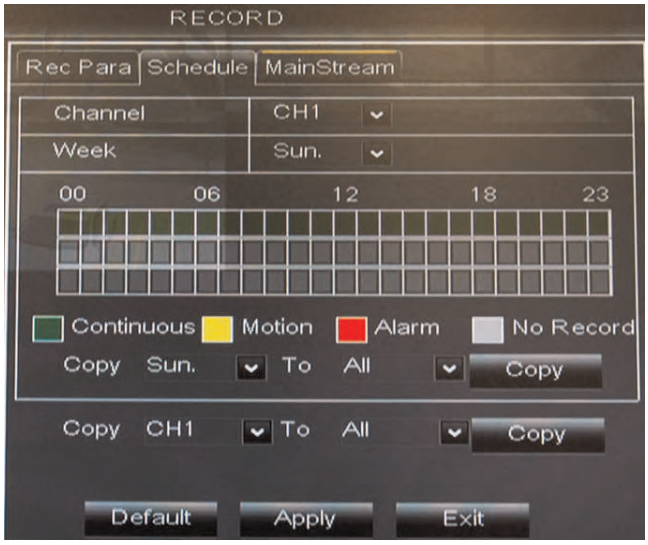
2. In the **Channel** drop-down menu, select the desired channel you wish to configure.
3. In the **PreRecord** drop-down menu, select **Enable** to enable pre-recording or **Disable** to disable pre-recording.
4. Click **Apply** to save your settings.

15.2.2 Configuring the Recording Schedule (Continuous, Motion, Alarm)

To configure the recording schedule:

1. Click the **Schedule** tab.
2. Configure the following:
   - **Channel**: Select the channel you wish to configure the schedule for.
   - **Week**: Select the day of the week you wish to configure.

3. Click inside the grid to configure the recording schedule:
   - The recording schedule is arranged as a grid. Each row represents a recording type (Continuous, Motion, and Alarm), and each box represents an hour.
   - Recording for each recording type is enabled during the selected hour when the box is filled in with the corresponding color. Recording for each recording type is disabled for the selected hour when the box is gray.



Note
Sensor devices (not included) must be connected to the system to use Alarm recording.

4. (Optional): Use the top **Copy** and **Copy To** drop-down to copy the recording schedule to a specific day or all days. Click **Copy** to copy the schedule.
5. (Optional): Use the bottom **Copy** and **Copy To** drop-down to copy the recording schedule to a specific channel or all channels. Click **Copy** to copy the schedule.
6. Click **Apply** to save your settings.

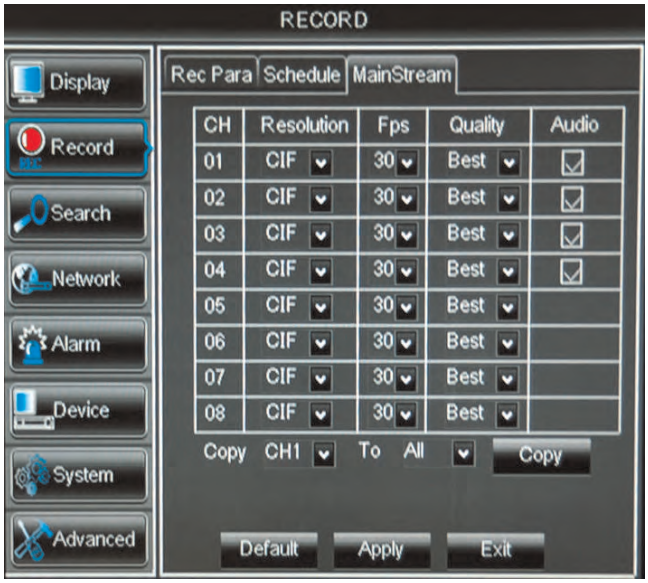
15.2.3 Enabling Audio Recording

Audio-capable cameras are required (not included) for audio recording.

To enable audio recording:

1. Click the **MainStream** tab.

2. Beside the corresponding channel, select or deselect the checkbox under **Audio** to enable or disable audio recording.



3. Click **Apply** to save your settings.

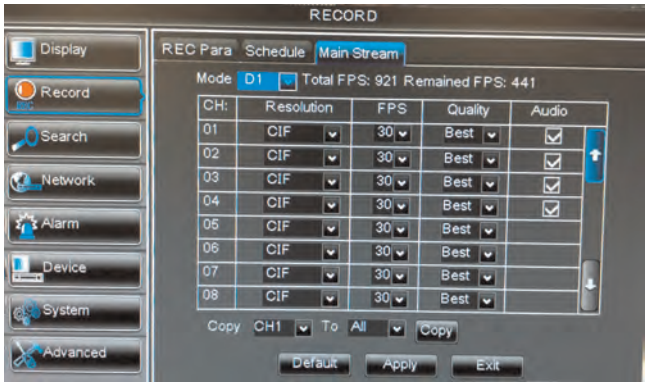
15.2.4 Configuring Recording Quality, Resolution, and Video Frame Rate

You can configure the recording quality, recording resolution and video frame rate for each channel.

To change the recording quality, recording resolution, and video frame rate:

1. Click the **MainStream** tab.
2. Under **Mode**, select **D1** or **960H**. 960H will enable larger, wide-screen formats, but it will decrease the number of Frames Per Second available for recording on 8/16-channel models.

> **Note**
> If you change this setting, the DVR will restart when you save changes.



3. Under the **Quality** drop-down menu, select from **Good, Better**, or **Best** to adjust the quality of recordings on each channel.

4. Under the **Resolution** drop-down menu, select the Recording Resolution for each channel:
   - If D1 is selected, available options are **CIF** (320x240), **HD1** (720x240), or **D1** (720x480).
   - If 960H mode is selected, available options are **480x240**, **960x240**, or **960x480**.
5. Under the **FPS** drop-down menu, select the number of frames per second you want the DVR to record on each channel.
6. (Optional) Use the **Copy** and **Copy To** drop-down menus to copy recording settings to one or all channels. Click **Copy** to copy recording settings.
7. Click **Apply** to save your settings.

Note
Increasing the resolution or quality settings may decrease the amount of Frames per Second (FPS) the DVR can record, depending on the specifications of your DVR model. If you receive an error message when saving your changes, reduce the Resolution, Quality, or FPS and try again.

15.3 Search

The Search menu allows you to search for recorded video and system logs.

- For details on playing back video, see 12 *Playback*, page 27.
- For details on backing up video, see 13 *Backup*, page 33.

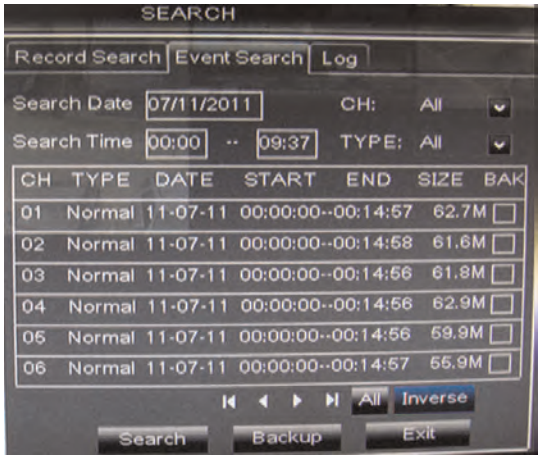
15.3.1 Using the Event Search

Event Search allows you to find video files based on the recording type. This allows you to quickly and easily locate videos that were triggered by motion or alarm devices (not included).

To perform an Event Search:

1. Click the **Event Search** tab.

2. Configure the following:
   - **Search Date**: Enter the month, date, and year.
   - **CH**: Select the channels you wish to search.
   - **Search Time**: Enter the time range you wish to search.
   - **Type**: Select the recording type you wish to search for.
3. Click **Search**. A list populates with videos.



4. Perform one of the following:
   - **Play video**: Double-click on the desired file.
   - **Back up a file**: Connect a blank USB flash drive to your system. Select the **BAK** checkbox beside the desired file name. Then, click the **Backup** button.

15.3.2 Using the Log Search

A log search allows you to search system event logs.

To perform a Log search:

1. Click the **Log** tab.

2. Configure the following to perform a Log search:
   - **Log Type**: Select the log type you wish to search under. Choose from **Alarm** (i.e. motion events), **Operation** (i.e. Configuration changes, Setup), or **All**.
   - **Start Time**: Enter the time you wish to begin searching.
   - **End Time**: Enter the time you wish to end searching.
3. Click **Search**.
4. (Optional) Click the **Backup** button to backup system logs to a USB flash drive (not included).

15.4 Network

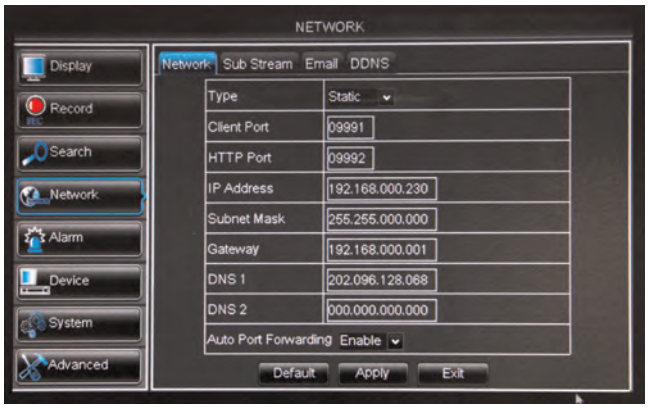
The Network menu allows you to configure network settings and email alerts.

15.4.1 Configuring Network Type: DHCP & Static IP

The system has the ability to operate in DHCP mode and Static IP mode.

To configure DHCP and Static IP settings:

1. Select the **Network** tab.
2. In the **Type** drop-down menu, select **DHCP** or **Static**. If you select DHCP, the router automatically assigns an IP to your DVR.



   If you select Static, click the field beside IP Address, and enter in the IP address of your choice.

   - Enter your custom **Subnet Mask**, **Gateway**, **DNS1** and **DNS2** using the mouse.
   - You must assign the IP in your router that you wish to make static. For example, if you assign 192.168.2.89 as the static IP in the DVR, you must assign 192.168.2.89 in your router as a static IP as well. Consult your router's user's manual for details.

3. Click **Apply** to save your settings.
4. Right-click until you exit all menus. You will be prompted to restart.

15.4.2 Enabling Auto Port Forwarding

Auto Port Forwarding allows the DVR to open required ports on your router. This feature only works on certain router models.

Note

Port forwarding is not required to use the Lorex Stratus Connectivity service. For details on setting up remote connectivity, see 16 *Connecting to Your DVR Over the Internet on PC or Mac*, page 70.

To enable Auto Port Forwarding:

1. Select the **Network** tab.
2. In the **Auto Port Forwarding** drop-down menu, select **Enable** or **Disable**.
3. Click **Apply** to save your settings.

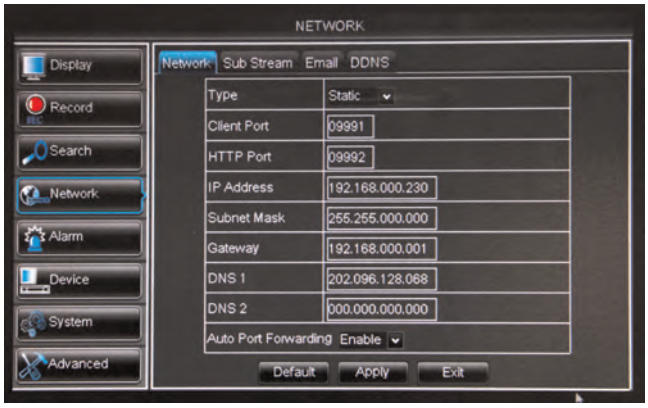
15.4.3 Changing the DVR's Client and HTTP Port

The DVR's Default Client port is **9000**. The default HTTP port is **80**.

To change the Client port and HTTP port:

1. Select the **Network** tab.

2. In **Client Port**, enter the desired Client Port (default: **9000**).



Note
9000 is represented as "09000."

3. In **HTTP Port**, enter the desired HTTP Port (default: **80**).
4. Click **Apply** to save your settings.
5. Right-click to exit all menus. You will be prompted to restart.

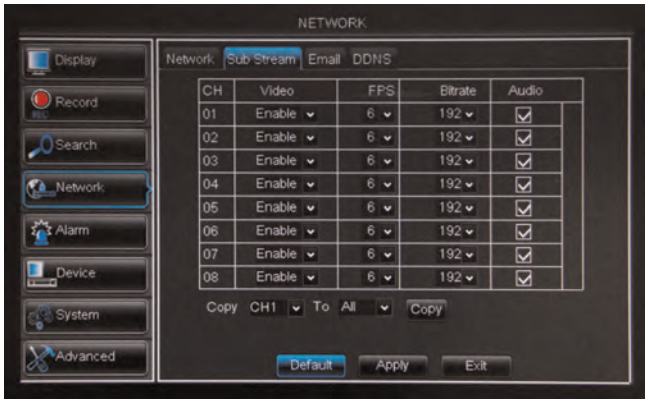
15.4.4 Adjusting Remote Connectivity Streaming Rates

You can adjust the data streaming rate (also called the SubStream) when you connect to the system remotely. If you want to conserve bandwidth, select a lower frame rate and bitrate.

Note
Setting your system to stream with a lower frame and bitrate may cause the video to appear choppy or slow.

To adjust the SubStream settings:

1. Click the **SubStream** tab.



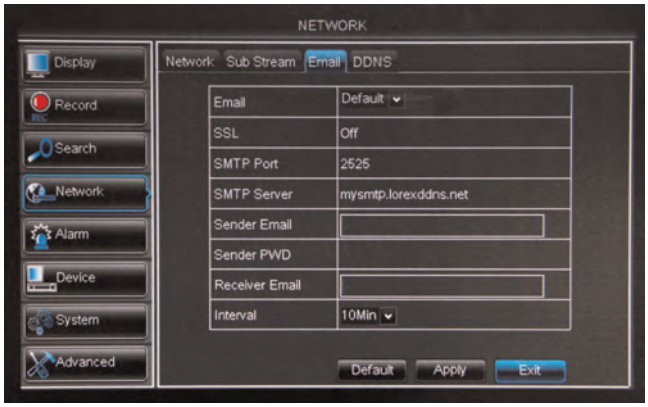
2. Configure the following beside the desired channel:
   - **Video:** Select **Enabled** or **Disabled**. If you select Disabled, you will not be able to view the channel when connecting remotely to the system.
   - **FPS:** Select the desired frames per second.
   - **Bitrate**: Select the desired video bitrate.
   - **Audio**: Select or de-select the checkbox to enable or disable the system from streaming audio when viewing the system remotely.
3. Click **Apply** to save your settings.

15.4.5 Setting up Email Notification

The system can send email notifications when it detects motion. Email notifications can also be sent when an alarm device triggers (alarm devices not included; only supported on certain models).

To set up email notification:

1. Click the **Email** tab in the Network menu.



2. From the **Email** drop-down menu, select from:
   - **Default**: Uses the Lorex email server to send out alarm notifications. This is the recommended selection.
   - **Enable**: Uses custom email server settings.
   - **Disable**: Disables email notification.

If you want to use Lorex's email server (recommended):

1. In the **Email** drop-down menu, select **Default**.
2. In the **Sender Email** field, enter the email address of the sender. This can be any email address of your choice.
3. In the **Receiver Email** field, enter the email address you want the DVR to send alarm notifications to.
4. In the **Interval** drop-down menu, enter the duration the DVR must wait before sending out a new notification.
   For example, if you select a 3 minute interval, the DVR will send out email notifications every 3 minutes until the DVR stops detecting motion / alarm. The DVR will only send out notifications when it detects motion / alarm triggers.
5. Click **Apply** to save your settings.

If you select "Enable", and want to use your own email server:

1. Configure the following:
   - **SSL**: Select **ON/OFF** to enable/disable Secure Socket Layer protocol.
   - **SMTP Port**: Enter the port used by your SMTP server.
   - **SMTP Server**: Enter your SMTP Server address.
   - **Sender Email**: Enter the sender email address. This can be any address of your choice.
   - **Sender Password**: Enter your email server's password.
   - **Receiver Email**: Enter the recipient's email address.
   - **Interval**: Enter the interval the DVR waits before sending a new email notification.
2. Click **Apply** to save your settings.
3. Right-click until you have exited all menus. You will be prompted to restart.

15.4.6 Configuring DDNS settings

Lorex DDNS is available as an optional connectivity option. Please see 25 *DDNS Setup (Advanced)*, page 146 for details.

The primary connectivity option uses Lorex Stratus Connectivity to connect to your system over the Internet without requiring port forwarding or DDNS registration. For details, see 16 *Connecting to Your DVR Over the Internet on PC or Mac*, page 70.

To configure DDNS settings:

1. Visit http://www.lorexddns.net and register for a DDNS account.
2. Click the **DDNS** tab.

3. Configure the following:
   - **DDNS**: Select **Enable**.
   - **Server**: Select **LOREXDDNS** (default).
   - **Domain Name**: Enter the Domain name/URL Request you received in the email after registering for DDNS.
   - **User Name**: Enter your DDNS User Name.
   - **Password**: Enter your DDNS Device password.
4. Click **Apply** to save your settings.

Note
Please allow 10~15 minutes for the DDNS servers to update with your new DDNS address before attempting to connect.

15.5 Alarm

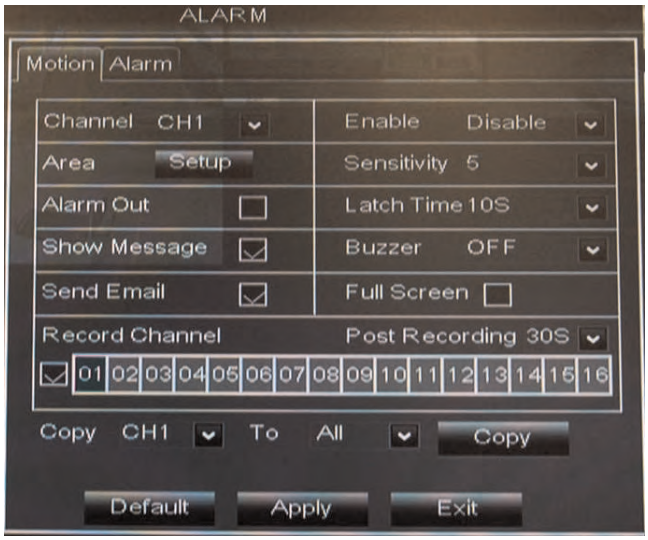
The Alarm menu allows you to configure Motion Detection and external Alarm devices (not included).

15.5.1 Configuring Motion Detection

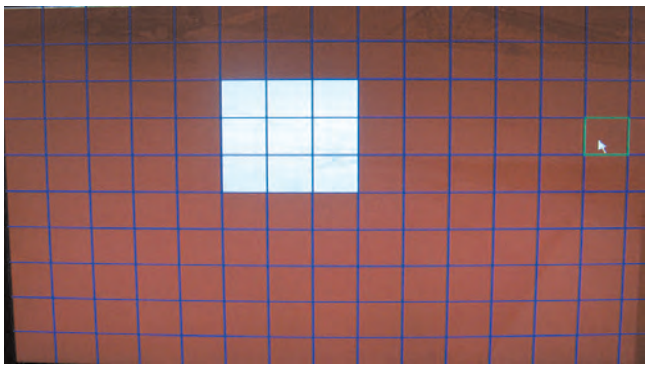
Configure motion settings to determine the area you wish to monitor for motion events, and the outcome if a motion event occurs.

To configure motion settings:

1. Select the **Motion** tab.



2. Configure the following:
   - **Channel**: Select the channel you wish to configure.
   - **Enable**: Select **Enable** or **Disable** to activate or deactivate motion recording.
   - **Area**: Click the **Setup** button to configure the area of the screen that detects motion.



Click and drag the mouse cursor to configure motion detection areas. Motion detection is enabled in red areas and disabled in transparent areas. Right-click to exit.

   - **Sensitivity**: Select motion sensitivity. The greater the number, the greater the sensitivity.
   - **Alarm Out**: Select the checkbox to enable the system to trigger an alarm device (not included).
   - **Latch Time**: Enter the duration alarm devices (not included) will continue to trigger after the event ends.
   - **Show Message**: Select the checkbox if you want the system to display a system message when an alarm triggers.
   - **Buzzer**: Select the duration the system will "beep" when motion is detected. Or select **OFF** to disable the "beep" during motion events.
   - **Send Email**: Select the checkbox if you want the system to send email notifications if an alarm triggers. Email notifications must be configured.
   - **Record Channel**: Select the channel you wish the DVR to record during motion recording.
   - **Full Screen**: Select the **Full Screen** check box so that the system goes into full screen mode when motion or an alarm trigger is detected.
   - **Post Recording**: Enter the post recording duration (the time the system continues to record after a motion event occurs).

3. Click **Apply** to save your settings.

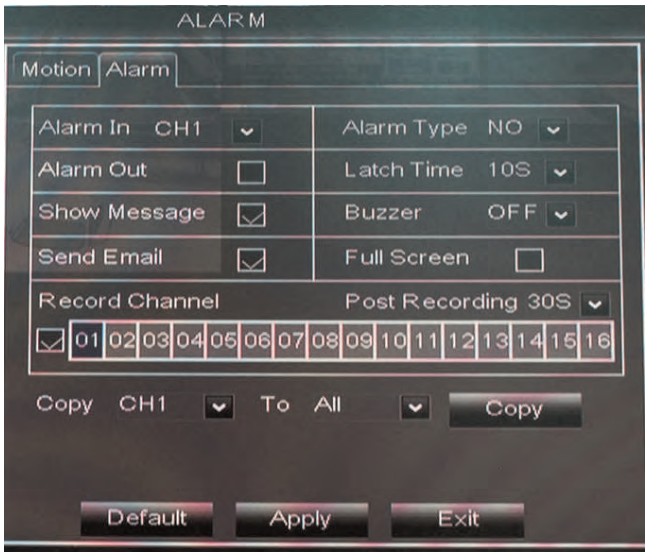
15.5.2 Configuring Alarm Settings

The Alarm tab allows you to configure how the system behaves when an external alarm device (not included) is triggered.

Note
External alarm devices (such as glass break detectors; not included) are required to configure settings in the Alarm tab. Some models do not support alarm devices. Check the specifications for your DVR to determine if it supports alarm devices.

To configure the Alarm tab:

1. From the Alarm menu, click the **Alarm** tab.



2. Configure the following:
   - **Alarm In**: Select the channel you wish to configure.
   - **Alarm Type**: Select the alarm type of the device. Choose from **N/O** (normally open), **N/C** (normally closed).
   - **Alarm Out**: Select the checkbox to enable the system's alarm block to trigger a connected external alarm.
   - **Latch Time**: Enter the duration the alarm continues to trigger after the event ends.
   - **Show Message**: Select the checkbox if you want the system to display a system message when an alarm triggers.
   - **Buzzer**: Select the checkbox to enable the system to "beep" if an alarm triggers.
   - **Send Email**: Select the checkbox if you want the system to send email notifications if an alarm triggers.
   - **Post Recording**: Select the duration the system continues to record as an event after the alarm trigger ends. For example, if you select 30s (30 seconds), the system continues to record for 30 seconds after the alarm trigger ends.
   - **Full Screen**: Select the check box so that the system goes into full screen mode when motion or an alarm trigger is detected.
3. Click **Apply** to save your settings.

15.6 Device

The Device menu allows you to configure and format hard drives, configure PTZ cameras (not included), and format a USB flash drive (not included).

- For details on connecting PTZ cameras (not included), see 21 *Connecting a PTZ Camera (LH160 Series)*, page 132.

15.6.1 Formatting the Hard Drive

⚠ **CAUTION**
Formatting the HDD erases **all data** on the hard disk. **This step cannot be undone.**

1. Select the **HDD** tab.

2. Click the checkbox under **Select** to choose the drive you wish to reformat.
3. Click **Format HDD**.
4. When the warning window appears, click **OK**. Wait for the system to format the hard drive.

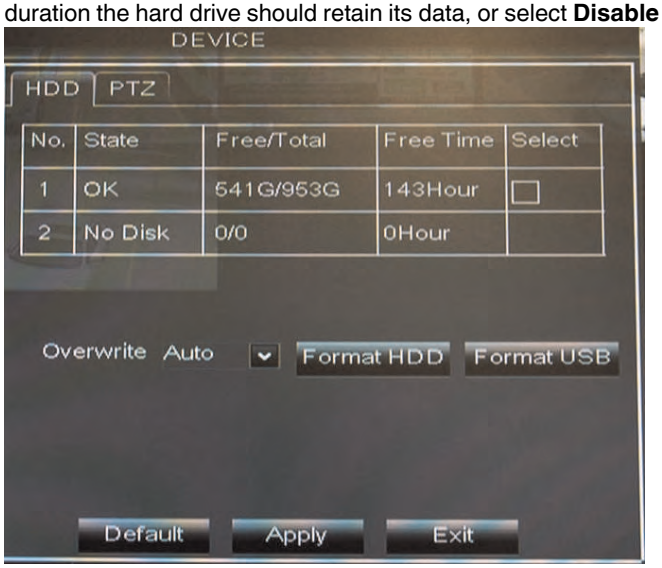
15.6.2 Configuring Overwrite

If Overwrite recording is enabled, the system's hard drive automatically re-writes the hard drive's oldest content (first in first out). Otherwise, the system will stop recording when the hard drive is full.

To configure Overwrite:

1. Select the **HDD** tab.
2. Select the checkbox beside the hard drive you wish to configure.

3. In the **Overwrite** drop-down menu, select **Auto** (recommended), select the desired duration the hard drive should retain its data, or select **Disable** to disable overwrite.



4. Click **Apply** to save your settings.

15.6.3 Formatting USB Flash Drives

⚠ **CAUTION**
Formatting a USB flash drive erases **all data** on the drive. **This step cannot be undone.**

1. Insert a USB flash drive (not included) into one of the **USB** ports.
2. In the main menu, click **Device>HDD**.

3. Click **Format USB**, then click **OK**. Wait for formatting to complete.

15.7 System

The System tab allows you to configure the system time and user accounts.

- For instructions on how to set the system time, including how to setup automatic Daylight Savings Time adjustments or NTP, see 10 *Setting the Date and Time*, page 23.

15.7.1 Changing Date Format

You can change the way the system displays the time (i.e. Month, Day, Year)

To change the date format:

1. Select the **General** tab.
2. In the **Date Format** drop-down menu, select the desired format. Choose from **MM/DD/YY** (Month, Day, Year), **YY/MM/DD** (Year, Month, Date), or **DD/MM/YY** (Day, Month, Year).
3. Click **Apply** to save your settings.

15.7.2 Changing Time Format

You can change the way the system displays the date and time format (i.e 6:00 pm or 18:00).

To change the time format:

1. Select the **General** tab.
2. In the **Time Format** drop-down menu, select **12 Hour** or **24 Hour**.
3. Click **Apply** to save your settings.

15.7.3 Changing the System Language

1. In the **Language** drop-down menu, select your desired system language.
2. Click **Apply** to save your settings.
3. Right-click until you exit the menu. Follow the on-screen instructions to restart your system.

15.7.4 Changing Video Output - NTSC & PAL

To change the video output:

1. In the **Video Format** drop-down menu, select **NTSC** or **PAL**.
2. Click **Apply** to save your settings.

15.7.5 Configuring Menu Time Out and Auto Logout

The Menu Time Out setting allows you to configure how long the system menu will remain on the screen during inactivity. If passwords are enabled, it also enables the Auto Logout, which allows the system to lock itself after the system is idle for the selected duration.

To configure Auto Logout:

1. Select the **General** tab. In the **Menu Time Out** drop-down menu, select the desired time before the system locks itself.
2. Click **Apply** to save your settings.

> **Note**
> You will need your system's user name and password to unlock the system.

15.7.6 Adding Users & Changing the Admin Password

- For details on changing admin and user passwords, see 14 *Managing Passwords*, page 36.

- For details on creating user accounts, see 14.2 *Adding Users*, page 37.

15.7.7 Viewing System Information

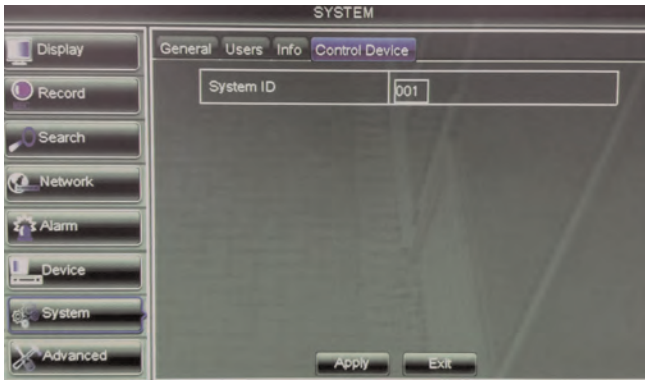
- Click the **Info** tab.

15.7.8 Setting the Remote Control ID

If you have more than one DVR, you can use the ID function to pair the remote control with a specific DVR.

To pair the remote control:

1. On the DVR, right-click to open the menu bar and click .
2. Enter the DVR user name (default: **admin**) and password (default: **000000**).
3. Click **System>Control Device**.



4. Under **System ID**, enter the desired ID number.
5. Click **Apply** to save your settings. Right-click repeatedly to return to live view.
6. On the remote control press **ID**, then press the ID number you entered in step 4 and press **Enter** to confirm.

Note
You do not need to enter 0's in the ID for unused digits. For example, if the ID is "004," press **ID>4>Enter**.

15.8 Advanced

The Advanced menu allows you to load system defaults, upgrade the system firmware, and configure automatic firmware updates.

15.8.1 Configuring Firmware Upgrades

> **WARNING**
>
> **Do not remove the USB flash drive or power off the DVR during the firmware update**. Wait for the system to reboot.

Firmware upgrades can provide improved functionality to your DVR. When firmware upgrades become available, you will automatically be prompted to upgrade your system. **You must have the latest DVR firmware and client software or mobile apps to connect to the DVR over the Internet.**

You can enable or disable firmware upgrade prompts from appearing.

The system must be connected to the Internet to enable automatic firmware updates.

To configure firmware upgrade notifications:

1. Select the **Auto Upgrade** tab.

2. Under **Auto Upgrade**, select **Enable** to enable automatic firmware updates. Messages for firmware upgrades will appear on the DVR locally and via client software.
3. Check **Check for update** to enable local messages on the DVR to notify you for updates. The system will check for firmware upgrades every hour.

> **Note**
> Click **Detect** to check for firmware updates manually.

4. Click **Apply** to save changes.

15.8.2 Upgrading the System Firmware Using a USB Thumb Drive

If your system is not connected to the Internet, you may also download firmware upgrades for free from www.lorextechnology.com and install them manually using a USB thumb drive (not included).

You must have the latest DVR firmware and client software or mobile apps to connect to the DVR over the Internet.

To upgrade the system firmware:

1. In your web browser, visit www.lorextechnology.com and search for the model number of your DVR (check the label underneath your DVR for the model number). Download the free firmware upgrade if one is available.
2. Extract the firmware into a blank USB flash drive. The firmware should be in a folder named **dvrupgrade**. Ensure that this is the only folder in the USB drive.
3. Insert the flash drive into one of the **USB** ports.
4. Right-click to open the Menu Bar and click the Main Menu button ( ).
5. Click **Advanced**.
6. Click **Firmware Update**.

7. Follow the on-screen instructions to update the firmware.

WARNING

Do not remove the USB flash drive or power off the DVR during the firmware update. Wait for the system to reboot.

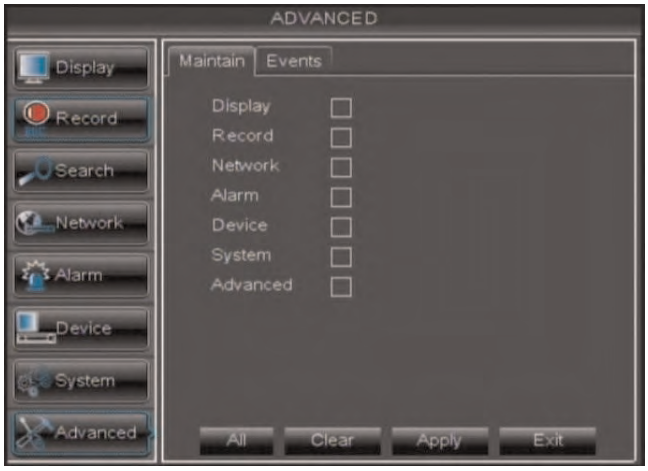
15.8.3 Restoring to Factory Default Settings

Restoring to factory default settings reverts any setting changes you have made to their original settings. This does not affect the recordings saved on the DVR. You can reset a single menu, or all menus.

To load system defaults:

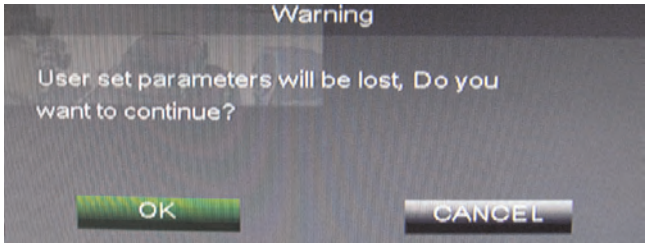
1. Right-click to open the Menu Bar and click the Main Menu button ( ).
2. Click **Advanced**. Then click **Load Default**.

3. Select the menus that you wish to restore to default settings, or click **All** to restore the entire system to default settings.

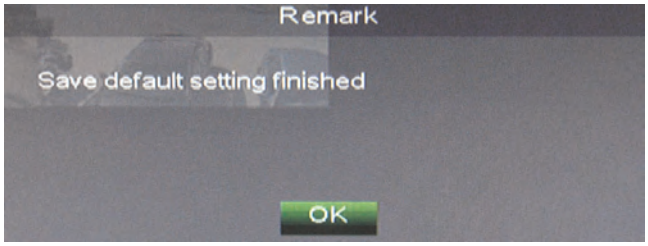


Note
It is recommended to leave the Network menu unchecked when restoring the system to factory defaults. If you restore the Network menu, you will need to redo remote connectivity setup to access your DVR over the Internet.

4. Click **Apply**.
5. When the warning window appears, click **OK** to restore your settings.



6. Click **OK** to return to the menu.



7. Right-click until you have exited all menus. The DVR prompts you to restart.

15.8.4 Restarting or Shutting Down the DVR

1. Right-click to open the Menu Bar and click the Main Menu button ( ).
2. Click **Advanced**.

3. Click **Reboot** or **Shut Down**.

4. Follow the on-screen instructions to restart or shut down your system.

15.8.5 Configuring System Warnings

The system can send out email notifications, or trigger a connected alarm device (not included) if it detects system abnormalities. For example, the system can send out a warning if the hard drive is low on storage.

To configure system warnings:

1. Click the **Events** tab.

2. Configure the following:
   - **Event Type**: Select the event that triggers the system to send out a notification or alarm trigger. Choose from **Disk No Space** (low hard drive space), **Disk Error** (hard drive error), or **Video Loss**.
   - **Enable**: Select **Enable** or **Disable** to activate or deactivate the system from sending out notifications.
   - **Alarm Out**: Select the checkbox to enable alarm out devices (not included) from triggering.
   - **Show Message**: Select the checkbox for the system to display an error message when an event occurs.
   - **Send Email**: Select the checkbox for the system to send out email notifications when a system error occurs. Note, email notifications must be configured.
   - **Latch Time**: Select the delay duration in the drop-down menu.
   - **Buzzer**: Select the buzzer (system beep) duration when the system detects a system error.
3. Click **Apply** to save your settings.

15.8.6 Saving Your System Configuration to a USB Flash Drive

The DVR allows you to save your current system configuration to a USB flash drive (not included). This is useful if you want to backup your current settings.

Note
This function only saves settings created in system menus. It does not save or backup any video.

To save your system configuration to a USB flash drive (not included):

1. Insert a USB flash drive (not included) into one of the **USB** ports.
2. Right-click to open the Menu Bar and click **Main Menu (** **)**.
3. Click **Advanced** and select the **Maintain** tab.
4. Click **Save Settings**. Wait for the system to save your settings.

15.8.7 Loading a System Configuration from a USB Flash Drive

1. Insert a USB flash drive (not included) that contains a saved configuration to a **USB** port. See above for details on how to save your DVR configuration.
2. Right-click to open the Menu Bar and click **Main Menu (** **)**.
3. Click **Advanced** and select the **Maintain** tab.

4. Click **Load Settings**. The DVR will load the saved settings from the USB flash drive and then restart.

16 Connecting to Your DVR Over the Internet on PC or Mac

This DVR features connectivity using the exclusive Lorex Stratus Connectivity. This cloud-enabled service allows for Internet connectivity without requiring any network configuration. Up to 3 devices may connect to the system at the same time.

This section refers to Internet setup on PC or Mac, for smartphone/tablet setup, see 18 *Mobile Apps: Accessing your DVR Using a Mobile Device*, page 96.

16.1 System Requirements

Prior to using Lorex Stratus Client, make sure your system meets or exceeds the following system requirements:

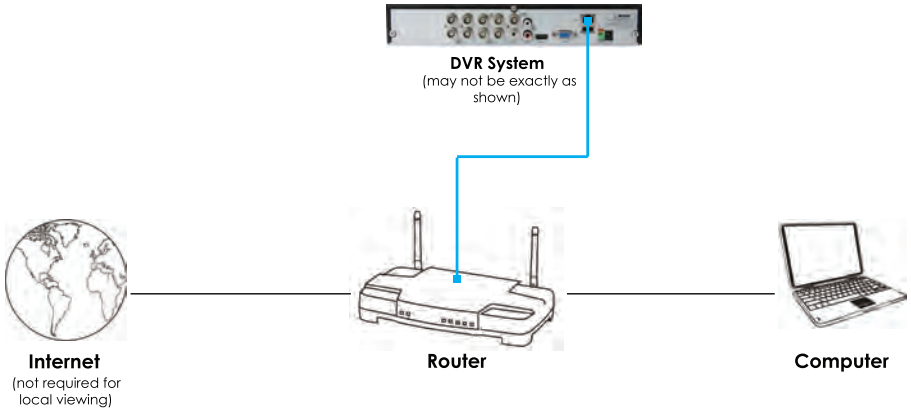
Description	Requirement
CPU	Pentium® 4 or above
Operating System	Windows 7/8 Mac OSX 10.6.6 and above (Intel processors only)[1]
Memory	256 MB RAM or greater
Video	16 MB of video memory
Network (LAN)	10/100 BaseT Network
Network (WAN)	384 Kbps upload2
Browser	Safari 6.0 and above (Mac)[1]

1. For the latest compatibility list, check www.lorextechnology.com, as new software versions are released to the market
2. An upload speed of 1Mbps is recommended for best video performance
3. If a user connects to the system remotely, there may be slow performance when accessing the system locally. This is normal, and not a malfunction.

16.2 Step 1 of 3: Connect your DVR to Your Router

1. Power off your DVR by disconnecting the power adapter.
2. Connect an Ethernet cable (included) to the **LAN** port on the rear panel of the DVR. Connect the other end of the Ethernet cable to an empty LAN port (usually numbered 1~4) on your router.

3. Reconnect the power adapter to power the DVR back on.

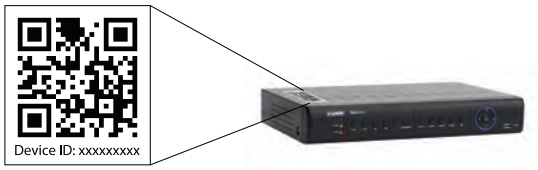


16.3 Step 2 of 3: Obtain the DVR's Device ID

The Device ID is a unique code that allows your system to handshake with the Lorex servers for a secure connection over the Internet.

To find the Device ID:

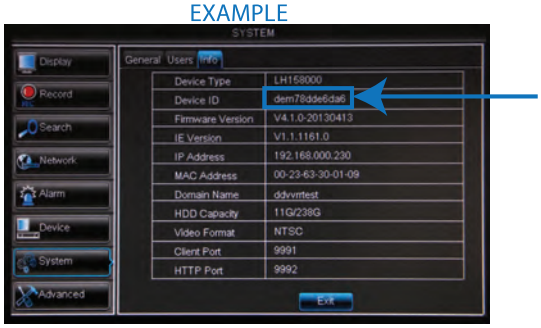
1. The Device ID is located on a sticker on the DVR.



You can also find the Device ID by:

- Pressing the button on the front panel or remote control to open the System Information window.
  OR
- Right-clicking and then clicking the Main Menu button ( ). Enter the DVR password (default: **000000**). Then click **System>Info**.

EXAMPLE



2. Write down the **Device ID** of the DVR.

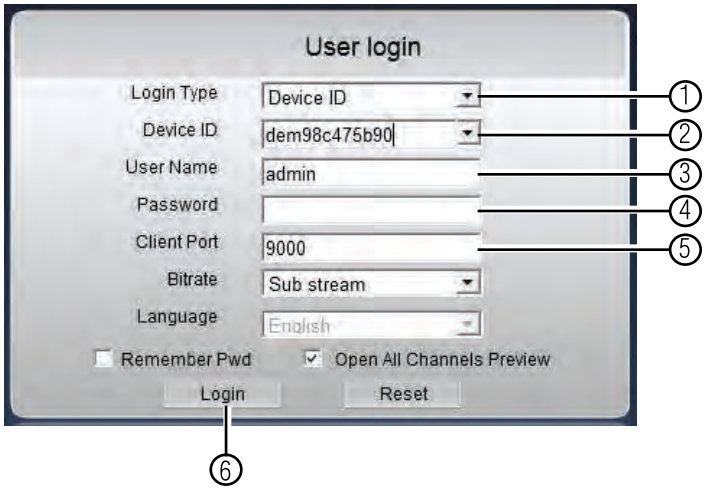
16.4 Step 3 of 3: Connect to the DVR Over the Internet

Follow the steps below to connect to the DVR over the Internet using a PC or Mac.

Note
Make sure to upgrade your DVR to the latest firmware version. You must have the latest DVR firmware and client software to connect to the DVR over the Internet.

PC

1. Download and install the **Client Software for PC** from www.lorextechnology.com.
2. Once installation is finished, double-click the Lorex Stratus Client icon ( ) from the desktop. The DVR login screen appears.
3. Configure the following:



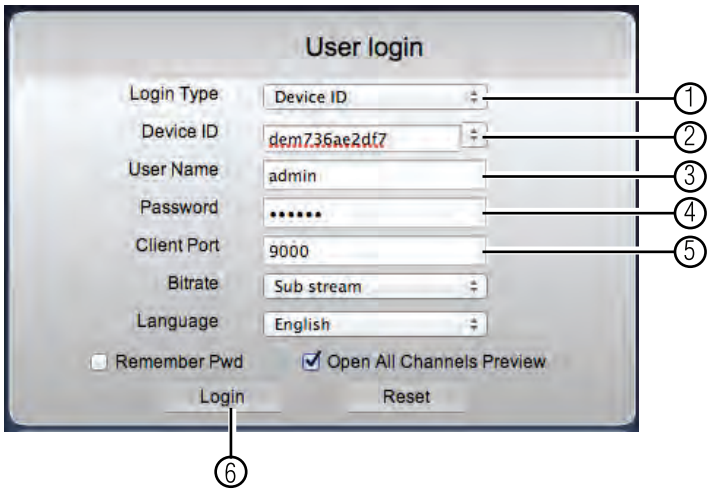
3.1. Under **Login Type**, select **Device ID**.
3.2. Under **Device ID**, enter the **DVR's Device ID**. See the label on the top of the DVR to find the Device ID.
3.3. Under **User Name**, enter the DVR's **user name** (default: **admin**).
3.4. Under **Password**, enter the DVR's **password** (default: **000000**).
3.5. Under **Client Port**, enter the DVR's **Client Port** (default: **9000**).
3.6. Click **Login**.

- If this is the first time connecting to your system, you will be prompted to change the password. Enter a new 6 character password and click **OK**.

4. Enter the new password in the login screen and click **Login** to connect to the DVR. The Client Software connects to your DVR and streams live video from your cameras.

Mac

1. Visit www.lorextechnology.com and download the **Client Software for Mac**.
2. Extract the installer file and double-click it to install.
3. Open Safari, then click **Safari>Quit Safari**. This resets Safari to complete the installation.
4. Open the Lorex Stratus Client icon ( ) from the Applications list.



4.1. Under **Login Type**, select **Device ID**.
4.2. Under **Device ID**, enter the **DVR's Device ID**. See the label on the top of the DVR to find the Device ID.
4.3. Under **User Name**, enter the DVR's **user name** (default: **admin**).
4.4. Under **Password**, enter the DVR's **password** (default: **000000**).
4.5. Under **Client Port**, enter the DVR's **Client Port** (default: **9000**).
4.6. Click **Login**.

- If this is the first time connecting to your system, you will be prompted to change the password. Enter a new 6 character password and click **OK**.

5. Enter the new password in the login screen and click **Login** to connect to the DVR. The Client Software connects to your DVR and streams live video from your cameras.

Using the PC/Mac Client Software

Upon login, the Live tab opens. The Client Software interface is the same on PC or Mac.

1. **Navigation Tabs**: Allows you to access the following tabs:
   - **Live**: Watch live video.
   - **Playback**: View saved video footage.
   - **Remote Setting**: Configure system and networking options.
   - **Local setting**: Configure where local files are stored on your hard drive.
   - **Logout**: Exits remote viewing.
2. **Active Channel List**: Displays channels that are currently live.
3. **Main Screen**: Main display screen for live viewing and playback. You can also drag the screens to any desired position.
4. **Viewing options**:
   - : Click to open all connected channels.
   - : Click to close all connected channels. Note that the system continues to record when you close channels remotely.
   - : Previous page.
   - : Next page.
   - : Click to open the selected channel in full screen view.
   - : Click to select the desired split-screen viewing options.
5. **Split screen Views**: Click the desired viewing mode.
6. **Mute**: Click to mute audio.

7. **Connection Status:** Shows the type of connection used.
   - **P2P** (peer-to-peer) indicates that the video is streaming directly from the DVR to the computer running the Client Software.
   - **RLY** (relay) indicates that the video is streaming through a Lorex video server. While relay mode is activated, the system will disconnect after 10 minutes of inactivity. Relay mode is only used when a direct connection cannot be made between the DVR and computer.
8. **PTZ Controls**: PTZ (Pan, Tilt, Zoom) control for connected PTZ cameras (not included).

17.1 Changing Viewing Modes

You can change the number of channels that the system displays simultaneously (i.e. Split-screen Mode, Single-channel Mode, etc.).

To change the DVR's viewing mode:

- Click one of the following: .
- If the controls are not shown, click .

17.2 Taking Screen Shots

The system can take screen shots of a selected channel during live view.

To take a screen shot of a channel:

1. Click beside the desired channel to capture an image.

2. A pop-up window opens on the bottom left corner of the window. Click **Preview** to view the image or **Folder** to show the image in the save folder.

17.3 Recording Video

You can record video footage directly onto your local hard drive. Once the video is in your hard drive, you can back up the video footage onto recordable media such as USB memory keys and blank CD/DVD media.

To record video:

1. Click next to the channel that you wish to capture video from. The video will record to the default save directory.

2. Click to stop video recording.

17.4 Showing / Hiding Channels

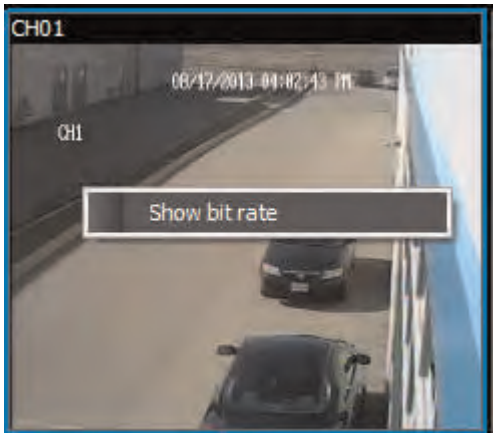
The Active Channel List is a convenient way to show / hide the cameras that display in the main viewing window.

To show or hide video in the main video window:

1. Click beside the channel number to show a channel. Click again to hide the channel.

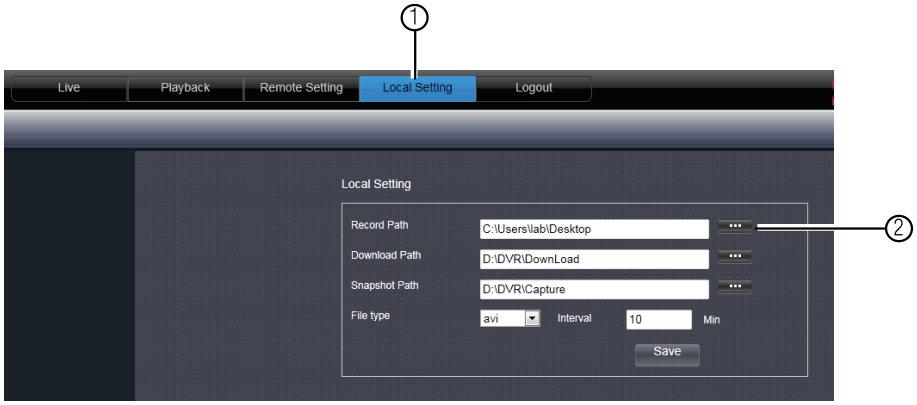
17.5 Viewing the Bit Rate

- Right-click on a channel and click **Show Bit rate** to display the video bit rate.



17.6 Changing the Save Directory of Screenshots or Recorded Video

1. Click the **Local Setting** tab.



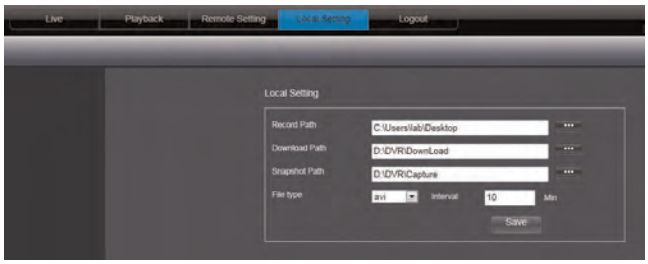
2. Click beside the desired category to browse for a save directory.
3. Select the desired save directory, and then click **OK**.
4. Click **Save** to save your changes.

17.7 Changing the Format of Recorded Video (PC Only)

You can change the format of recorded video saved using Remote Surveillance. This allows you to directly backup footage from your DVR as an .avi file. This does not affect the format of video files that are backed up locally on the DVR (i.e. using a USB flash drive).

Note
This feature is not available via Mac.

1. Click the **Local Setting** tab.



2. Under **File Type**, select the file format you would like to use when saving video (**264** or **avi**).
3. (Optional) Under **Interval**, select the maximum length (in minutes) for video saved on the remote computer.
4. Click **Save** to save your changes.

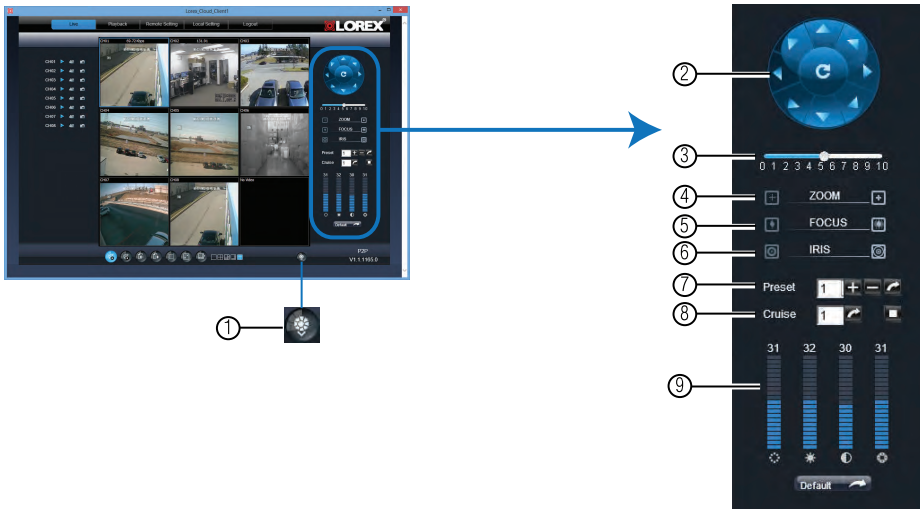
17.8 Configuring PTZ Settings

The system supports remote PTZ controls for compatible PTZ cameras (not included).

- For details on connecting PTZ cameras to your system, see 21 *Connecting a PTZ Camera (LH160 Series)*, page 132.

To control the PTZ settings on the DVR:

- From the Live tab, double-click to select the channel the PTZ camera is connected to. Use the PTZ control panel to control the pan, tilt, zoom, focus, and iris control of the camera.



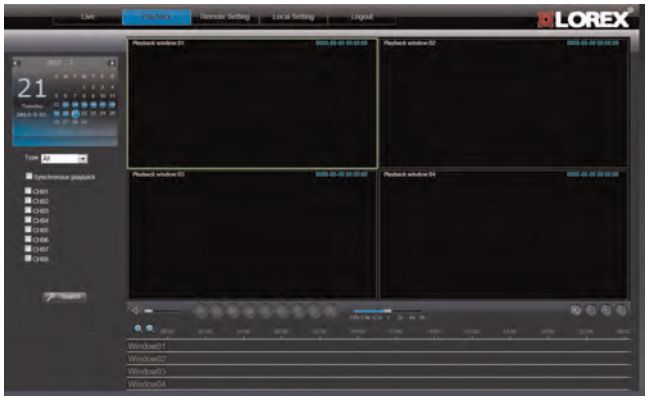
1. **Show/Hide PTZ Controls**: Click this button to hide/show PTZ controls. Click inside the display area to pan and tilt the camera.
2. **Direction Keys**: Click to pan and tilt the camera.
3. **Speed Slider**: Increase or decrease the pan and tilt speed.
4. **Zoom**
5. **Focus**
6. **Iris**
7. **Preset**: Click **+** to save the current camera position as a preset. Click **—** to delete the preset. To go to a preset, select the number of the preset you would like to go to and then click .
8. **Cruise**: Click to start a cruise. Click to stop the cruise. While cruise is enabled, the camera will automatically cycle through saved presets.
9. **Video Settings**: Use the sliders to adjust the video quality settings of the camera.

17.9 Video Playback

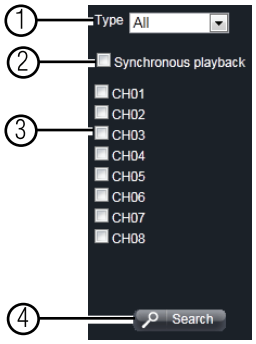
Video playback allows you to watch video that has been saved in the DVR's hard drive.

To playback video:

1. Click the **Playback** tab.



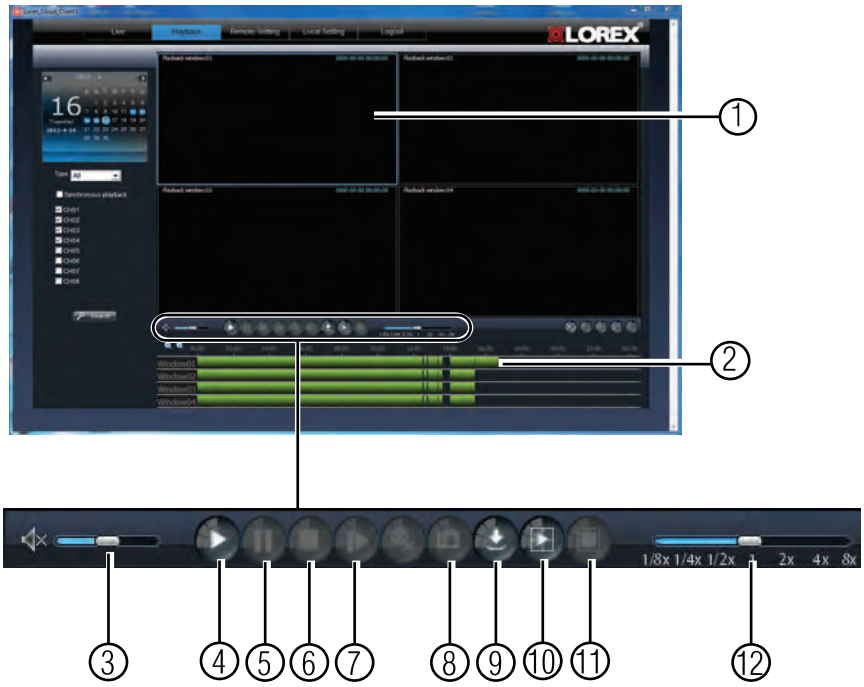
2. In the calendar window, click the desired month, year, and date. Then, perform the following:



2.1. Under the **Type** drop-down menu, select the desired recording type you wish to search for (Continuous, Alarm, or All).
2.2. Check **Synchronous playback** to play all selected channels at the same time.
2.3. Select the channels you wish to search.
2.4. Click the **Search** button.

3. Click ▶ to begin playback.

17.9.1 Video Playback Controls



1. **Playback Window.**
2. **Video Content:** Drag the line left or right to select the playback time.
3. **Volume.**
4. **Play.**
5. **Pause.**
6. **Stop.**
7. **Step Forward:** Click to advance the video by one frame.
8. **Take Screenshot.**
9. **Download:** Allows you to download recorded videos to your computer hard drive. To download video, click the channel you want to back up and click the Download content button. A list of files appears. Select the files you want to back up and click **Start Download**.
10. **Play All.**
11. **Stop All.**
12. **Speed Slider**: Drag the slider to control playback speed.

17.10 Configuring Display Settings

1. Click the **Remote Setting** tab, and then click **Display>Live**.

2. Configure the following:
   - **Channel**: Select the channel you want to modify.
   - **Name**: Enter the channel name if you want to re-name the channel
   - **Position**: Select the position of where the title appears in the channel.
   - **Covert**: **Enable** or **Disable** covert recording. Covert recording will hide the channel on the DVR's local display. You will see be able to see the channel when you log in remotely.
   - **Show Time**: Select **Enable** or **Disable** to show or hide the time on the DVR's local display.
   - **Record Time**: Select **Enable** or **Disable** to show or hide the record time on the remote display.
3. Click **Save** to apply your settings.

17.11 Configuring Privacy Zone Settings

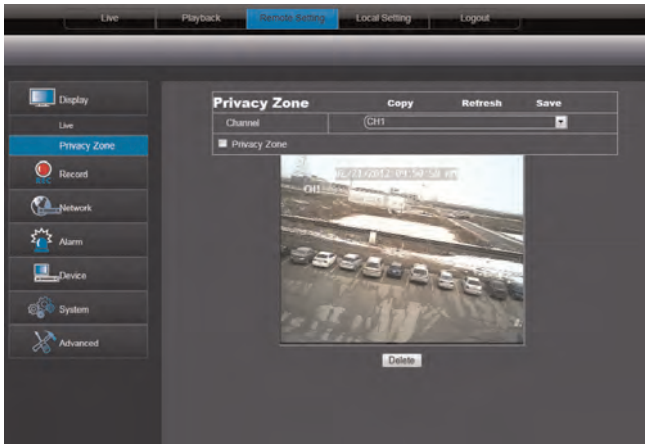
⚠ **CAUTION**
Areas covered by privacy zones are not visible in recordings.

You can blank out a certain portion of the channel with a black box.

To configure a privacy zone:

1. Click the **Remote Setting** tab, and then click **Display>Privacy Zone**.
2. In the **Channel** drop-down menu, select the channel you wish to configure.
3. Select the **Privacy Zone** checkbox to enable privacy masking.

4. Drag your mouse cursor over the areas you wish to black out. A red box indicates the area that is masked (blocked out).

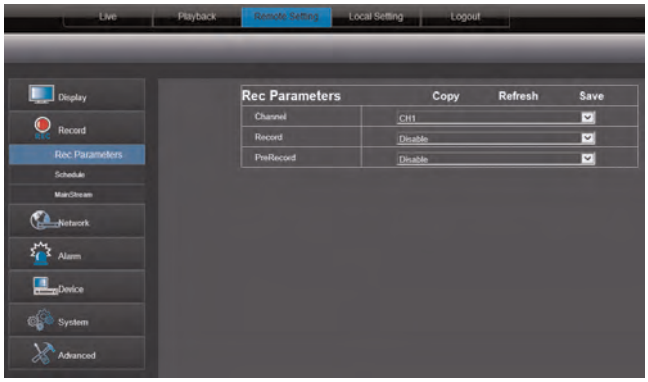


- To remove a privacy area, click on the red box, then click the **Delete** button.

5. Click **Save** to apply your settings.

17.12 Configuring Recording Parameters

1. Click the **Remote Setting** tab, and then click **Record>Rec Parameters**.



2. Configure the following:

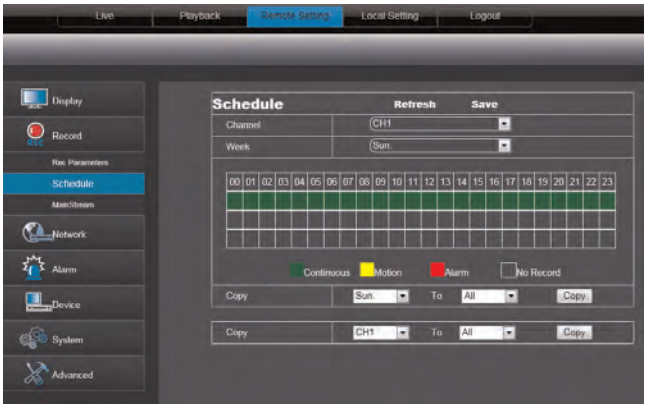
- **Channel**: Select the channel you wish to configure.
- **Record**: Select **Enable** or **Disable** to start or stop system recording.
- **Pre-record**: Select whether to enable or disable pre-recording.

3. Click **Save** to apply your settings.

17.13 Configuring the Recording Schedule

1. Click the **Remote Setting** tab, and then click **Record>Schedule**.

2. Configure the following:
   - **Channel:** Select the channel you wish to configure.
   - **Week**: Select the day of the week you would like to apply the settings to.

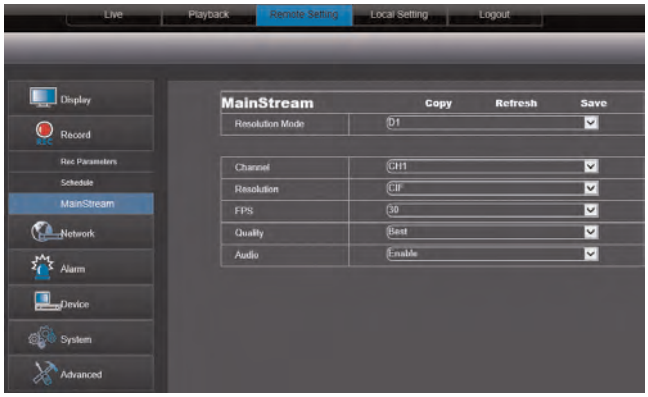


   The recording schedule is arranged as a grid. Each row represents a recording type (Continuous, Motion, and Alarm), and each box represents an hour.

3. Click the recording grid, and select the type and duration of recording.
4. (Optional) Use the top **Copy** and **Copy To** drop-down to copy the recording schedule to a specific day or all days. Click **Copy** to copy the schedule.
5. (Optional) Use the bottom **Copy** and **Copy To** drop-down to copy the recording schedule to a specific channel or all channels. Click **Copy** to copy the schedule.
6. Click **Save** to apply your settings.

17.14 Configuring System Recording Quality

1. Click the **Remote Setting** tab, and click **Record>MainStream**.



2. Under **Resolution Mode**, select **D1** or **960H**. If you change the Resolution Mode setting, the system will restart once you save your changes.
3. Configure the following:
   - **Channel**: Select the channel you wish to apply the settings to.
   - **Resolution**: Select the desired recording resolution.
   - **FPS (Framerate)**: Select the desired recording frame rate. Note that higher frame rates require greater bandwidth consumption during remote viewing.
   - **Audio**: Select whether you want the system to record audio (audio cameras required, not included).

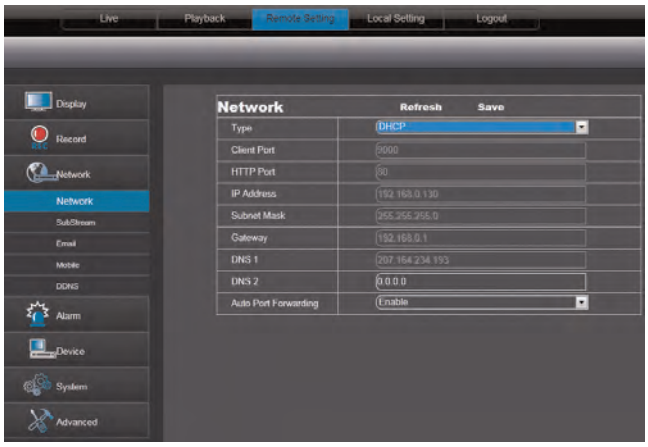
4. Click **Save** to apply your settings.

17.15 Configuring Basic Network Settings

The basic network menu allows you to configure the network protocol type (DHCP or Static).

To configure basic network settings:

1. Click the **Remote Setting** tab, and click **Network**.



2. Configure the following:
   - **Type**: Select between **DHCP** or **Static**. If you select Static, you can edit the IP address, Subnet Mask, Gateway, and DNS settings.
   - **Auto Port Forwarding**: Select **Enable** or **Disable** to enable or disable the Auto Port Forwarding feature.
3. Click **Save** to apply your settings.

17.16 Configuring the System Substream

You can adjust the data streaming rate (also called the SubStream) when you connect to the system remotely. If you want to conserve bandwidth, select a lower frame rate and bitrate.

Note
Setting your system to stream with a lower frame and bitrate may cause the video to appear choppy or slow.

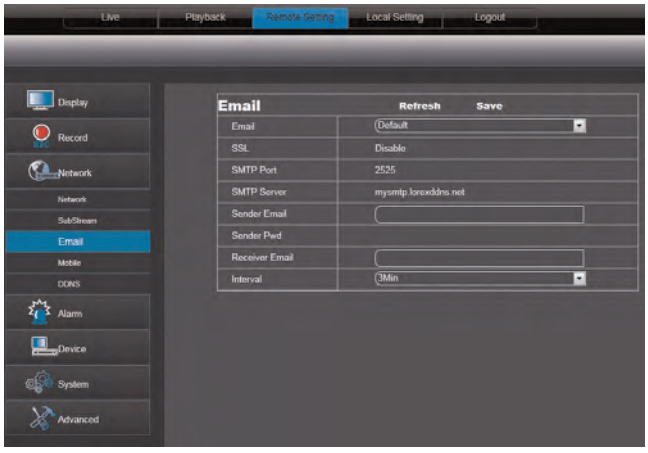
To configure the system's substream:

1. Click the **Remote Setting** tab, and click **Network>SubStream**.

2. Configure the Substream settings:
   - **Channel**: Select the channel you wish to apply the settings to.
   - **Resolution**: Select the desired recording resolution.
   - **FPS (Framerate)**: Select the desired recording frame rate. Note that higher frame rates require greater bandwidth consumption during remote viewing.
   - **Bit Rate**: Select the desired video bit rate.
   - **Audio**: Select whether you want the system to record audio (audio cameras required, not included).
3. Click **Save** to apply your settings.

17.17 Configuring Email Notification Settings

1. Click the **Remote Setting** tab, and click **Network> Email**.



2. In the Email drop-down menu, select **Default** to use the default Lorex email server (recommended) or select **Custom** to use your own custom SMTP email server.

If you want to use Lorex's email server (recommended):

1. In the **Sender Email** field, enter the email address of the sender. This can be any email address of your choice.

2. In the **Receiver Email** field, enter the email address you want the DVR to send alarm notifications to.
3. In the **Interval** drop-down menu, enter the duration the DVR must wait before sending out a new notification. For example, if you select a 3 minute interval, the DVR will send out email notifications every 3 minutes until the DVR stops detecting motion / alarm. The DVR will only send out notifications when it detects motion / alarm triggers.
4. Click **Save** to save your settings.

If you select "Enable", and want to use your own email server:

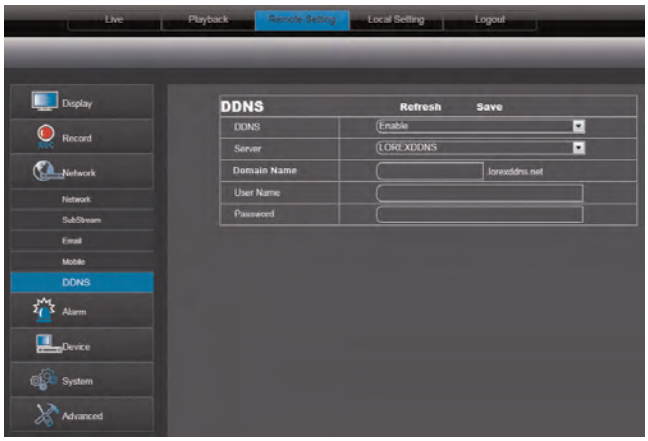
1. Configure the following:
   - **SSL**: Select **ON/OFF** to enable/disable Secure Socket Layer protocol.
   - **SMTP Port**: Enter your SMTP address.
   - **SMTP Server**: Enter your SMTP Server.
   - **Sender Email**: Enter the sender email address. This can be any address of your choice.
   - **Sender Password**: Enter your email server's password.
   - **Receiver Email**: Enter the recipient's email address.
   - **Interval**: Enter the interval the DVR waits before sending a new email notification.
2. Click **Save** to save your settings.

17.18 Configuring DDNS Settings

The primary connectivity option uses Lorex Stratus Connectivity to connect to your system over the Internet without requiring port forwarding or DDNS registration (see 16 *Connecting to Your DVR Over the Internet on PC or Mac* for details). Lorex DDNS is also available as an optional connectivity option (see 25 *DDNS Setup (Advanced)*, page 146 for details).

To configure DDNS settings:

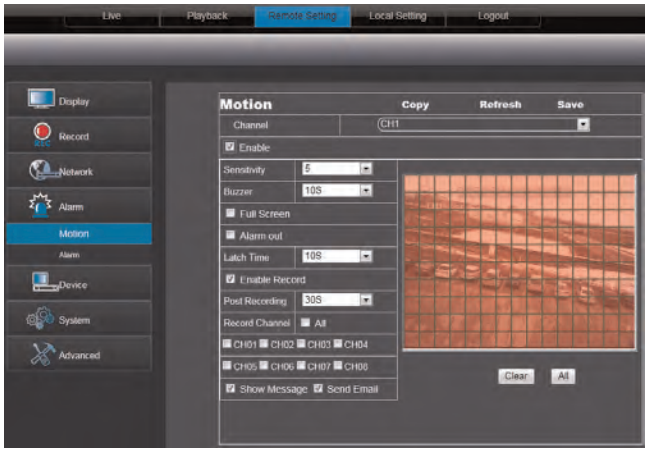
1. Visit http://www.lorexddns.net and register for a free DDNS account.
2. Click the **Remote Setting** tab, and click **DDNS**.



3. Configure the following:
   - **DDNS**: Select **Enable** or **Disable**.
   - **Server**: drop-down menu, select **LOREXDDNS**.
   - **Domain Name**: Enter your **Domain name/URL Request** from the confirmation email that was sent after you created your DDNS account.
   - **User name**: Enter your **DDNS User Name** that was emailed to you after DDNS registration.
   - **Password**: Enter your **DDNS Device password** that was emailed to you after DDNS registration.
4. Click **Save** to apply your settings.

17.19 Configuring Motion Detection Settings

1. Click the **Remote Setting**, and click **Alarm>Motion**.
2. Configure the following motion recording parameters:
   - **Channel**: Select the channel you wish to apply the settings to.
   - **Enable**: Select this checkbox to enable motion recording.
   - **Sensitivity**: Select the desired motion detection sensitivity. The greater the value, the greater the motion sensitivity.
   - **Buzzer**: Select **OFF** to disable the buzzer when the system detects a motion event or select the duration of the buzzer after the system detects a motion event.



Click and drag in the grid to configure motion detection areas.
Red: Motion detection enabled.
Clear: Motion detection disabled.

   - **Alarm Out**: Select the checkbox to trigger connected alarm devices (not included).
   - **Full Screen**: Select the checkbox so that the channel goes into full screen mode when motion is detected.
   - **Enable Record**: Select to enable system recording when motion is detected.
   - **Post Recording**: Select the post-recording time after a motion event occurs.
   - **Record Channel**: Select the channels that should record during a motion event.
   - **Show Message**: Select the checkbox to enable the system to display a warning message during a motion event.
   - **Send Email**: Select the checkbox for the system to send a email notification during a motion event.
3. Drag your mouse cursor in the window to select the desired area to monitor the channel for motion.

4. Click **Save** to apply your settings.

17.20 Configuring your System to "Beep" During Motion

You can set your system to "beep" during motion. This is useful to notify you if someone enters or exits an area.

To configure the system to "beep" during motion:

1. Click the **Remote Setting** tab, and click **Alarm>Motion**.
2. In the **Channel** drop-down menu, select the channel you wish to configure.
3. Select the **Enable** checkbox.
4. Beside the **Buzzer** drop-down menu, select the "beep" duration or select **OFF** to disable the "beep."
5. In the video window, select the area you wish to monitor for motion.
6. Click **Save** to apply your settings.

Result: The system beeps when it detects motion, and a green "M" icon appears. The green "M" icon indicates that the system is only detecting motion, but not recording. To have the system record motion events, enable motion recording in the recording calendar (**Remote Setting tab>Record>Schedule**).

17.21 Configuring Alarm Notifications

Configure the settings for alarm devices (not included).

Note
External alarm devices (such as glass break detectors; not included) are required to configure settings in the Alarm menu. Some models do not support alarm devices. Check the specifications for your DVR to determine if it supports alarm devices.

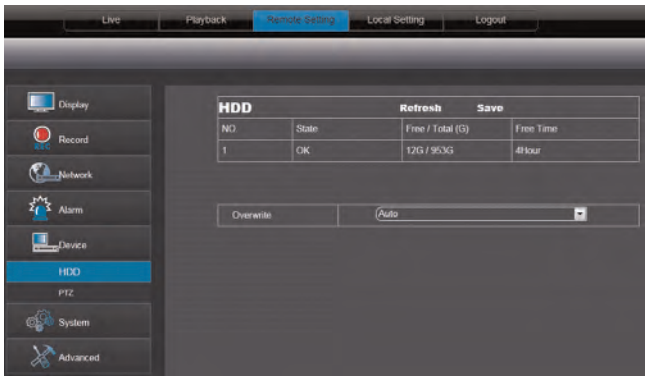
To configure alarm notifications:

1. Click the **Remote Setting** tab, and click **Alarm>Alarm.**

2. Configure the following:
   - **Alarm In**: Select the channel that you wish to configure.
   - **Alarm Type**: Select the alarm type **N/O** (normally open), **N/C** (normally closed), or select **OFF**.
   - **Buzzer**: Select the "beep" duration when an event occurs.
   - **Latch Time**: Select the desired latch time when an alarm triggers.
   - **Show Message**: Select the checkbox so that the system displays a warning message during an alarm recording.
   - **Send email**: Select the checkbox for the system to send out email alerts during alarm recording.
   - **Full Screen**: Select the checkbox to enable the system to go into Full-screen View when an alarm triggers.
   - **Alarm Out**: Select the checkbox to enable alarm out devices to activate.
   - **Enable Record:** Select the checkbox to enable system recording when an alarm triggers.
   - **Post Recording**: Select the desired post recording time after an alarm triggers.
   - **Record Channel**: Select the channels that the system should record during an alarm trigger.
3. Click **Save** to apply your settings.

17.22 Configuring Hard Drive Recording Mode

1. Click the **Remote Setting tab**, and click **Device>HDD**.



2. In the **Overwrite** drop-down menu, select **Auto** to enable overwrite mode.

Note
When overwrite is enabled, the system deletes the oldest footage (first in, first out) when the hard drive is full. You can also select a desired amount of days or hours the system should retain data. For example, if you select 30 days, the hard drive will begin to overwrite itself after 30 days. Note that your hard drive must be large enough to store video for the selected duration.

3. Click **Save** to apply your settings.

17.23 Configuring PTZ Parameters

The system is capable of controlling PTZ cameras (not included) that are connected to the system. Parameters for setting up PTZ cameras can be set either on the DVR locally or via the remote client.

Note
Please note that you will need to physically connect the PTZ camera to the DVR and acquire PTZ parameters from the PTZ camera manufacturer's instruction manual. For more details on connecting a PTZ camera to your system, see 21 *Connecting a PTZ Camera (LH160 Series)*, page 132.

To configure PTZ settings:

1. Click the **Remote Setting** tab, and click **Device>PTZ**.

2. Configure the following:
   - **Channel**: Select the channel that the PTZ camera is connected to.
   - **Protocol**: Select the protocol of the PTZ camera.
   - **Baud Rate**: Select the baud rate of the PTZ camera.
   - **Data Bit**: Select the data bit rate of the PTZ camera.
   - **Stop Bit**: Select the stop bit rate of the PTZ camera.
   - **Parity**: Select the parity settings of the PTZ camera.
   - **Cruise**: Select **Enable** or **Disable**.
   - **Address**: Select the address of the PTZ camera.
3. Click **Save** to apply your settings.

17.24 Configuring the System Time and Date

1. Click the **Remote Setting** tab, and click **System>General**.

2. Configure the system format and time:
   - **System Time**: Enter the desired system time and date. An on-screen calendar appears when you click the date.
   - **Date Format**: Select the desired format the date is displayed in.
   - **Time Format**: Select between 12 hour or 24 hour time formats.
3. Select **DST** to enable daylight savings time, or **NTP** to sync the time with a NTP time server.

Note
Using the NTP feature requires that your DVR have a constant Internet connection.

17.25 Changing the System's Menu Time Out

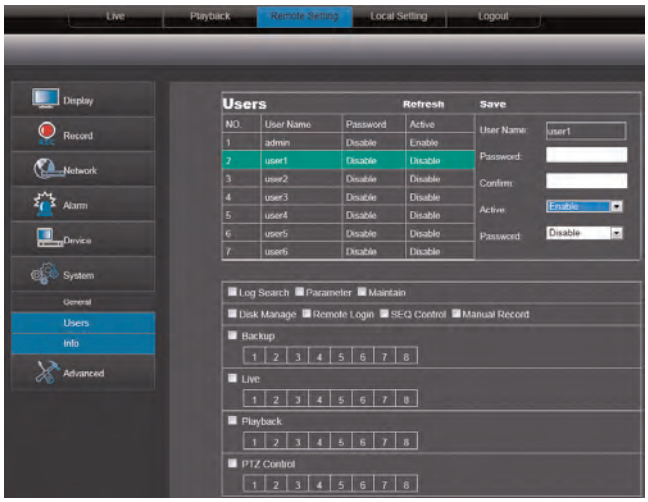
1. Click the **Remote Setting** tab, and click **System>General**.
2. In the **Menu Timeout** drop-down menu, select the duration the menu stays on screen before disappearing.
3. Click **Save** to apply your changes.

17.26 Configuring System User Accounts

You can add user accounts on the system.

To configure the user accounts menu:

1. Click the **Remote Setting** tab, and click **System>Users**.



2. Configure the following:
   - Click the desired user you wish to configure (i.e. user1).
   - **User name**: Enter the desired user name.
   - **Password**: Enter the desired user password.
   - **Confirm**: Re-enter the user password.
   - **Active**: Select **Enable** or **Disable** to activate or de-activate a user account.
   - **Password**: Select **Enable** to require a user password when users log on.
3. Select the menus that the user will have access to.
4. Click **Save** to apply your settings.

17.27 Viewing System Information

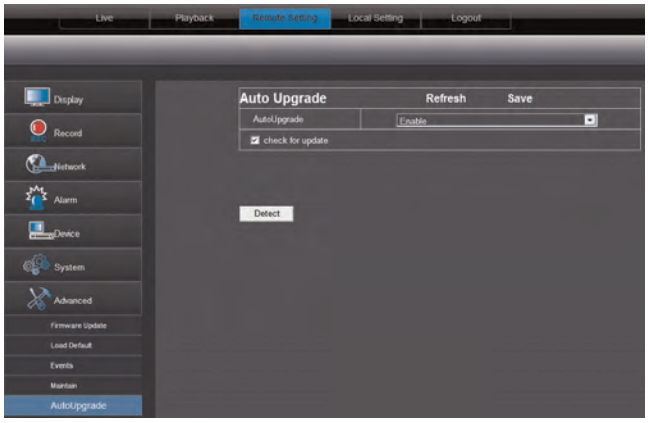
1. Click the **Remote Setting** tab, and click **System>Info**.

17.28 Configuring Firmware Upgrades

Firmware upgrades can provide improved functionality to your DVR. When firmware upgrades become available, you will automatically be prompted to upgrade your system. You must have the latest DVR firmware and client software to connect to the DVR over the Internet.

To configure firmware auto upgrades:

1. Click the **Remote Setting tab**, and click **Advanced>Auto Upgrade**.



2. Under **Auto Upgrade**, select **Enable** to enable automatic firmware updates. Messages for firmware upgrades will appear on the DVR locally and on the client software.
3. Check **Check for update** to enable local messages on the DVR to notify you for updates. The system will check for firmware upgrades every hour.

> **Note**
> Click **Detect** to check for firmware updates manually.

4. Click **Save** to save changes.

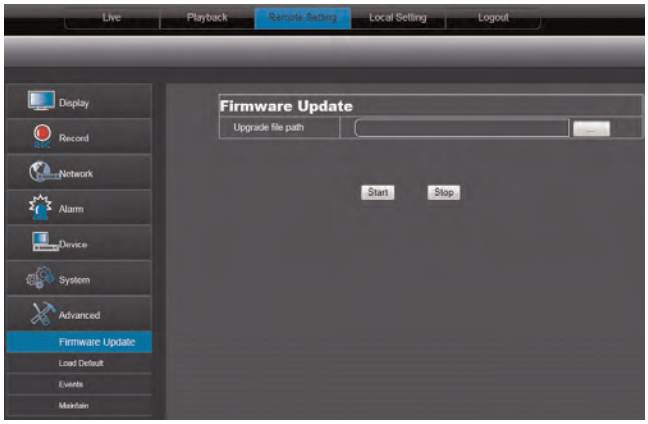
17.29 Manually Upgrading System Firmware

To manually upgrade the system firmware, download the latest firmware from the system's product page at www.lorextechnology.com.

You must have the latest DVR firmware and client software to connect to the DVR over the Internet.

To upgrade the system firmware:

1. Download and extract the file to your computer's desktop.
2. Click the **Remote Setting** tab, and click **Advanced>Firmware** upgrade.

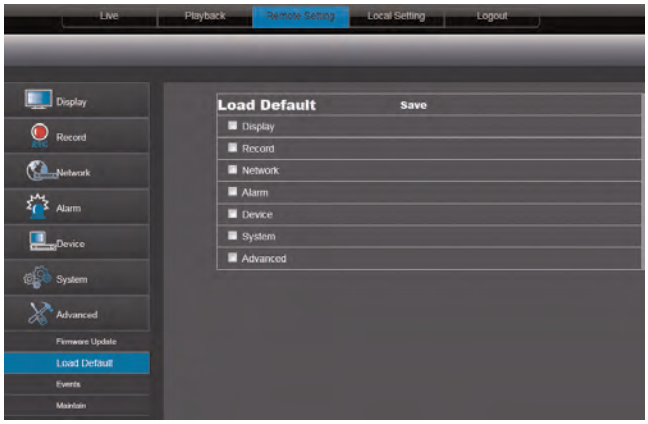


3. Beside **Upgrade File Path**, click the browse button (**...**). Locate the firmware, and click **Open**.
4. Click **Start** to begin the firmware upgrade.
5. Follow the on-screen instructions to complete the firmware upgrade.

⚠ **CAUTION**
DO NOT POWER OFF THE DVR OR DISCONNECT THE POWER CABLE DURING A FIRMWARE UPGRADE. Your system will restart during the firmware upgrade process.

17.30 Restoring Default Settings

1. Click the **Remote Setting** tab, and click **Advanced>Load Default**.



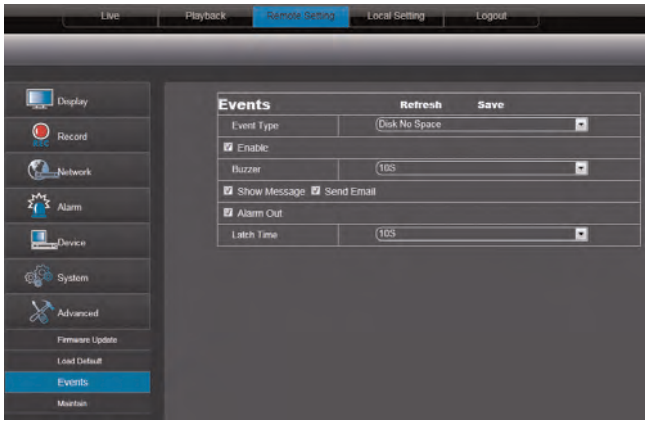
2. Select the menus that you wish to restore to factory defaults.
3. Click **Save** to restore system defaults for the selected items.

17.31 Configuring Event Settings

The Event Settings tab allows you to configure how the system behaves when a system event occurs (e.g. hard drive error, video loss). This is useful if you want your DVR to notify you if there is a potential system problem.

To configure the system event settings:

1. Click the **Remote Setting** tab, and click **Advanced>Events**.



2. Configure the following:
   - **Event Type**: Configure the type of event that triggers the system to send an alert.
   - **Enable**: Select **Enable** to activate the system to notify you if an event occurs.
   - **Buzzer**: Select **OFF** to enable/disable the system buzzer or select the duration of the system buzzer after an event occurs.
   - **Show Message**: Select the checkbox to enable the system to display a warning message when an event occurs.
   - **Send Email**: Select the checkbox to enable email notifications. Email notification must be enabled.
   - **Alarm Out**: Select **Enable** for the system to trigger alarm out devices when an event occurs (alarm devices required; not included).
   - **Latch Time**: Configure the system latch time after an event occurs.
3. Click **Save** to save changes.

18 Mobile Apps: Accessing your DVR Using a Mobile Device

You can remotely view camera streams from your DVR on compatible mobile phones and tablets. This system features connectivity using the exclusive Lorex Stratus Connectivity, which allows for easy access using a mobile device without requiring network configuration or a computer to complete the setup.

Note
Up to 3 devices can connect to the system at the same time.

18.1 Supported Apps and Platforms

Platform	App Name	Get App From
iPhone	Lorex Eco Stratus	Apple App Store
iPad	Lorex Eco Stratus HD	Apple App Store
Android	Lorex Eco Stratus	Google Play Store

For the latest list of supported apps and devices, visit www.lorextechnology.com/support.

18.2 iPhone

Use the **Lorex Eco Stratus** application to connect to your DVR on the iPhone.

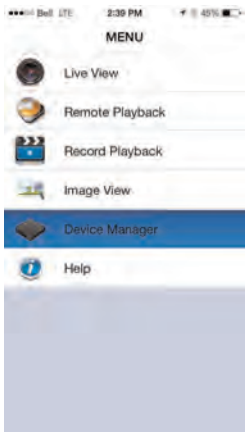
Prerequisites

- An iTunes account (requires valid credit card number). Your credit card will not be billed when downloading the app.
- Connect your DVR to your router using an Ethernet cable (included).
- **Make sure to upgrade your DVR to the latest firmware version**. You must have the latest DVR firmware and mobile apps to connect to the DVR over the Internet.

Note
For the latest list of supported apps and devices, visit www.lorextechnology.com/support.

18.2.1 Connecting to Your System Using Lorex Eco Stratus

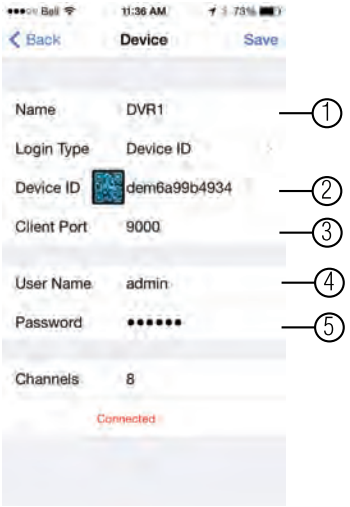
1. Install the **Lorex Eco Stratus** app for free from the App Store.
2. Tap the Lorex Eco Stratus icon ( ) to open the app.
3. Tap **Device Manager**.



4. Tap **+**.

5. Configure the following:

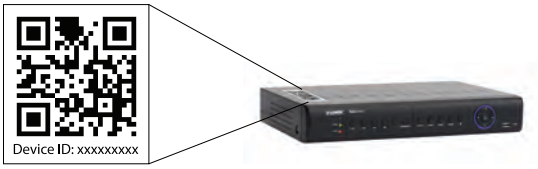
EXAMPLE



5.1. Under **Name**, enter a name for your DVR of your choice.

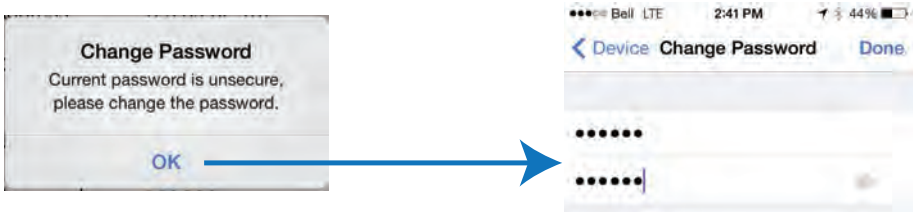
5.2. Press the QR code icon ( ) next to Device ID and line up the QR code on the top of the DVR using the camera on your device.
OR

If your device does not have a camera (e.g. 1st generation iPad), manually enter the **Device ID** printed on the label.



5.3. Under **Client Port**, enter the **DVR's Client Port** (default: **9000**).
5.4. Under **User Name**, enter the DVR's User Name (default: **admin**).
5.5. Under **Password**, enter the **DVR's Password** (default: **000000**).

6. Tap **Save**. If this is the first time connecting, you will be prompted to change the DVR password. Tap **OK**. Enter a new 6 character password and tap **Done**. This password will be used to connect to your system from now on.



7. Tap **Save** again to connect to the DVR. The app opens in Live View and streams video from all connected cameras.

18.2.2 Lorex Eco Stratus Interface

1. **Live View**: Tap a channel to select it. Double tap to view a channel in full screen. Swipe left or right to change cameras or pages.
2. **Disconnect selected channel.**
3. **Disconnect/connect all channels**.
4. **Screenshot.**
5. **Manual Record.**
6. **Select Device.**
7. **PTZ Controls.**
8. **Select Display Mode.**

18.2.3 Taking Screenshots

1. Tap during live view or playback.
   - If taking screenshots from live view: select the grid area you would like to take a screenshot from or tap to take a screenshot from all connected cameras.

2. To view screenshots, see 18.2.7 *Viewing Screenshots*, page 102.

18.2.4 Taking Manual Recordings

1. Tap during live view or playback.
   - If taking manual recordings from live view: tap the grid area you would like to start recording on. Tap again when you would like to stop recording.
   - If taking manual recordings from playback: tap when you would like to stop recording.
2. To view manual recordings, see 18.2.8 *Viewing Manual Recordings*, page 103.

18.2.5 Using PTZ Controls

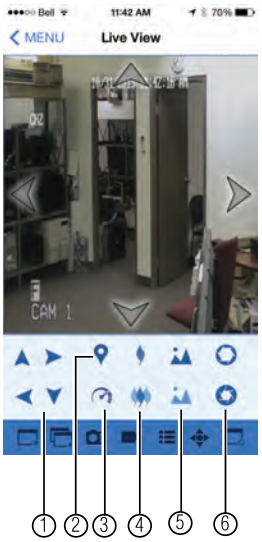
If you have a PTZ camera (not included) connected, you may control it using the app.

Note
You must configure the system to communicate with the PTZ camera locally before you can control it using the app. For details, see 21 *Connecting a PTZ Camera (LH160 Series)*, page 132.

To use PTZ Controls:

1. Tap the channel with your PTZ camera.
2. Tap to open PTZ controls.
3. Double-tap the channel to select it in full screen. Use the PTZ controls.

PTZ Camera Controls



1. **Directional Arrows**: Click the arrows to control the camera.
2. **Call Preset.**
3. **Set Speed.**
4. **Zoom In/Out.**
5. **Focus In/Out.**
6. **Iris In/Out.**

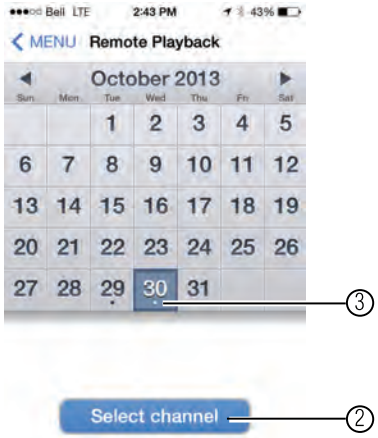
18.2.6 Using Remote Playback Mode on iPhone

Remote Playback Mode allows you to view recorded video saved on your DVR's hard drive.

To use remote playback mode:

1. From the Main Menu, tap **Remote Playback**.
2. Tap **Select Channel**. Select the channel you would like to playback from.

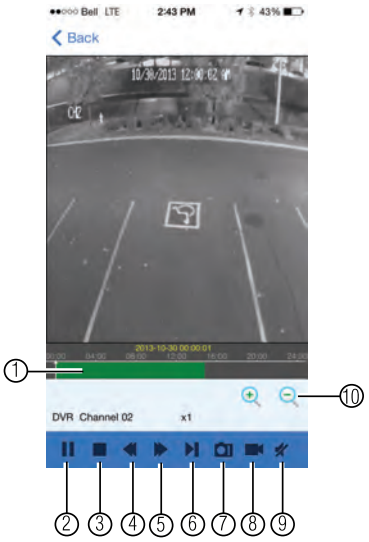
3. The calendar shows any days that have recorded video for the selected channel with dots under the date. Tap on a date to view video from that day. Swipe up or down to change the month shown in the calendar.



Note
Swipe up or down to select the month.

4. Playback begins at the earliest available recordings from the selected day. Use the on-screen playback controls.

Remote Playback Controls:



1. **Playback Bar**: Shows times with recorded video available.
2. **Pause/Play.**
3. **Stop.**
4. **Slow Playback.**
5. **Fast Forward.**
6. **Step Forward**: Advance the video by one frame.
7. **Take Screenshot.**
8. **Manual Record**: Tap to start/stop manual recording.
9. **Mute/Unmute.**
10. **Zoom**: Change scope of times shown in Playback Bar.

18.2.7 Viewing Screenshots

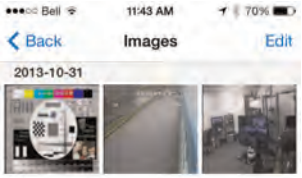
You can view screenshots or email them using the app.

Note
To email screenshots, you must have an email account configured in the Email app. Lorex does not support the Email app. Please refer to your device's user's guide or www.apple.com if you need support to set up the Email app.

To view screenshots:

1. From the Main Menu, tap **Image Manager**.
2. Select the DVR with screenshots you would like to view.

3. Tap the screenshot you would like to view.



Screenshot Viewing Controls

1. Swipe left or right to select screenshot
2. Send screenshot as email attachment.
3. Begin slideshow (tap inside the picture to stop the slideshow).
4. Delete screenshot.

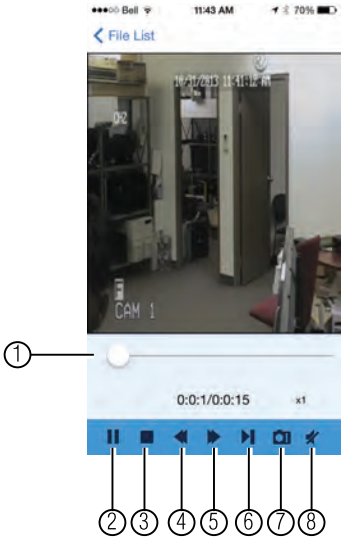
18.2.8 Viewing Manual Recordings

You can view manual recordings using the app.

To view manual recordings:

1. From the Main Menu, tap **Record Playback**.
2. Tap the DVR you would like to view manual recordings from.
3. Tap the recording file you would like to view.
4. Use the on-screen controls.

Manual Recording Playback Controls



1. **Playback Bar**: Select playback time.
2. **Pause/play.**
3. **Stop.**
4. **Slow.**
5. **Fast Forward.**
6. **Step forward**: Advance the video one frame.
7. **Take Screenshot.**
8. **Mute/Unmute.**

18.2.9 Using Device Manager to Manage DVR's

You can use the Device Manager to add, delete, or modify your DVR's.

To delete a DVR:

1. From the Main Menu, tap **Device Manager**.

2. Swipe to the left on the DVR you would like to delete and tap **Delete**.

3. Tap **Delete** to confirm.

To modify a DVR:

1. From the Main Menu, tap **Device Manager**.
2. Tap on the DVR you would like to modify.
3. Change the connection details as needed and then tap **Save**.

18.3 iPad

Use the Lorex Eco Stratus HD application to connect to your DVR on an iPad.

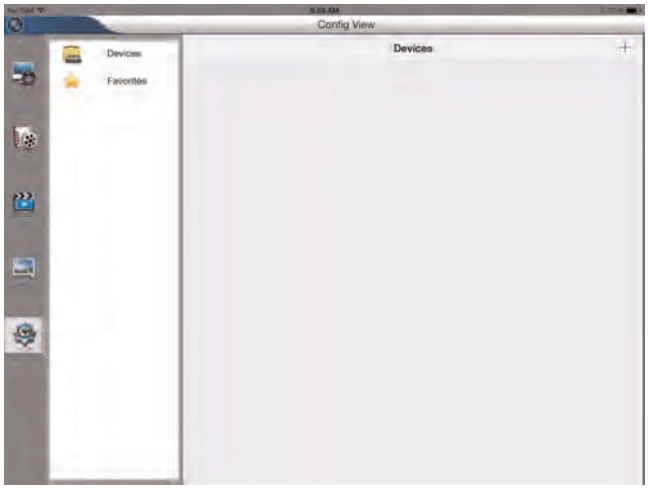
18.3.1 Prerequisites:

- Connect your DVR to your router using an Ethernet cable.
- **Make sure to upgrade your DVR to the latest firmware version.** You must have the latest DVR firmware and mobile apps to connect to the DVR over the Internet.
- For the latest list of supported apps and devices, visit www.lorextechnology.com/support.

18.3.2 Connecting to your DVR

1. Install the free **Lorex ECO Stratus HD** app from the App Store.
2. Tap the **Lorex ECO Stratus HD** icon ( ) to open the app.
3. Tap .

4. Tap **+**.



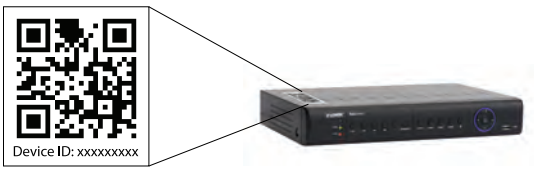
5. Configure the following:

EXAMPLE

5.1. Under **Name**, enter a name for your DVR of your choice.

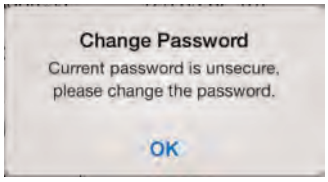
5.2. Press the QR code icon ( ) next to Device ID and line up the QR code on the top of the DVR using the camera on your device.
OR

If your device does not have a camera, manually enter the **Device ID** printed on the label.

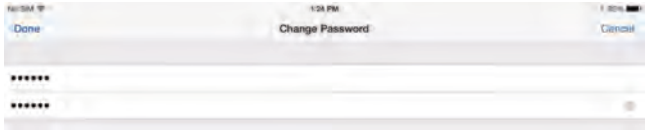


5.3. Under **Client Port**, enter the DVR's **Client Port** (default: **9000**).
5.4. Under **User Name**, enter the DVR's **User Name** (default: **admin**).
5.5. Under **Password**, enter the DVR's **Password** (default: **000000**).

6. Tap **Save**. If this is the first time connecting, you will be prompted to change the DVR password. Tap **OK**.

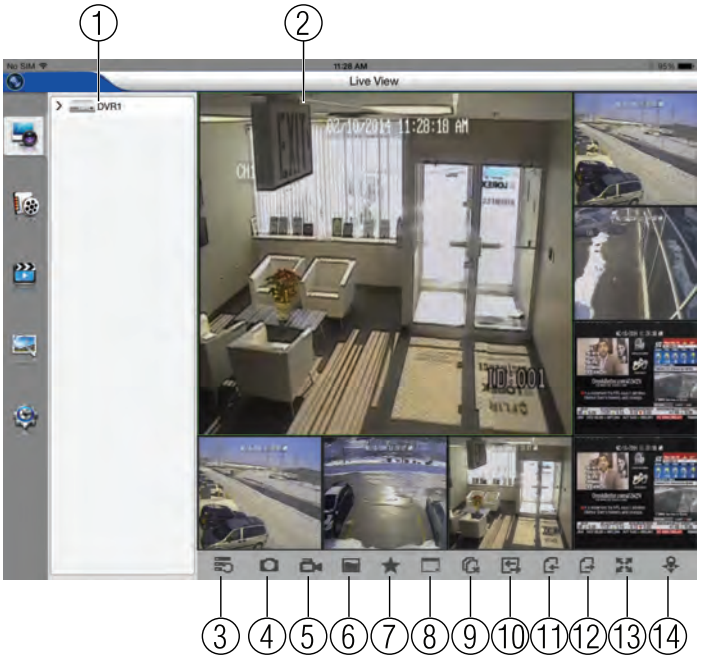


7. Enter a new 6 character password and tap **Done**. This password will be used to connect to your system from now on.



8. Tap **Save** again to connect to the DVR. The app opens in Live View and streams video from all connected cameras.

18.3.3 Live View Interface



1. **Device List**: Drag cameras to the display area to open a single camera. Drag a DVR to the display area to open all cameras connected to that DVR.
2. **Display Area**: Tap a camera to select. Double tap to view a camera in full screen.
3. **Show/Hide Device List.**
4. **Screenshot**: Tap to take a screenshot from the currently selected camera.
5. **Manual Recording**: Tap to start recording the currently selected camera. Tap again to stop recording.
6. **Clear/Fluent**: Select **Clear** for the app to prioritize video quality over frame rate if the connection is not fast enough. Select **Fluent** for the app to prioritize frame rate over video quality.
7. **Favorites.**
8. **Disconnect/Connect**: Tap to disconnect from/connect to the currently selected camera.
9. **Disconnect/Connect All**: Tap to disconnect from/connect to all cameras.
10. **Split-screen**: Select desired split-screen layout.
11. **Previous Page**: Tap to select the previous page of cameras.
12. **Next Page**: Tap to select the next page of cameras.
13. **Full-screen**: Tap to open the display area in full-screen. Tap again to exit full-screen.
14. **PTZ Controls**: Tap to open PTZ camera controls (PTZ camera required; not included).

18.3.4 Taking Screenshots

1. Tap during live view or playback to take a screenshot from the currently selected camera. To view snapshots, please refer to the section 18.3.8 *Viewing Screenshots*, page 111.

18.3.5 Taking Manual Recordings

1. Tap during live view or playback to start manual recording from the selected camera.
2. Tap again to stop recording. To view manual recordings, please refer to the section 18.3.9 *Viewing Manual Recordings*, page 112.

18.3.6 Using PTZ Controls

If you have a PTZ camera (not included) connected, you may control it using the app.

Note
You must configure the system to communicate with the PTZ camera locally before you can control it using the app. For details, refer to the online user manual for your system.

To use PTZ controls:

1. Tap the channel with your PTZ camera.
2. Tap to open PTZ controls.
3. Double-tap the channel to select it in full screen. Use the PTZ controls.

PTZ Controls

1. **Zoom In/Out.**
2. **Focus In/Out.**
3. **Iris In/Out.**
4. **Direction Keys**: Tap the arrows to control the camera direction.
5. **Speed**: Use the slider to set the camera's speed.
6. **Close PTZ Controls.**

18.3.7 Using Remote Playback Mode

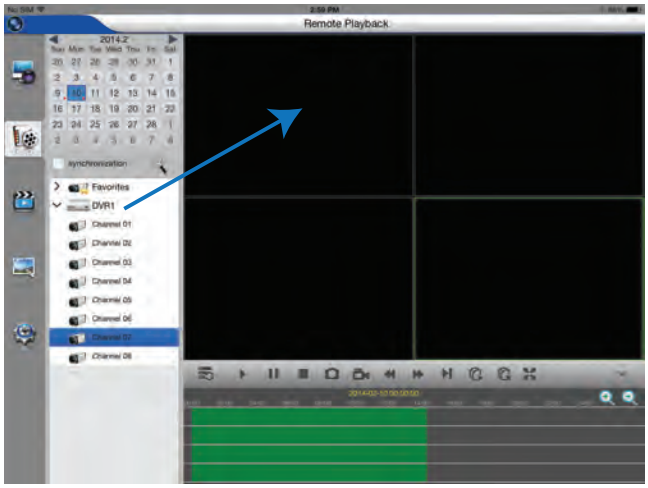
Remote Playback Mode allows you to view recorded video saved on your DVR's hard drive.

To use remote playback mode:

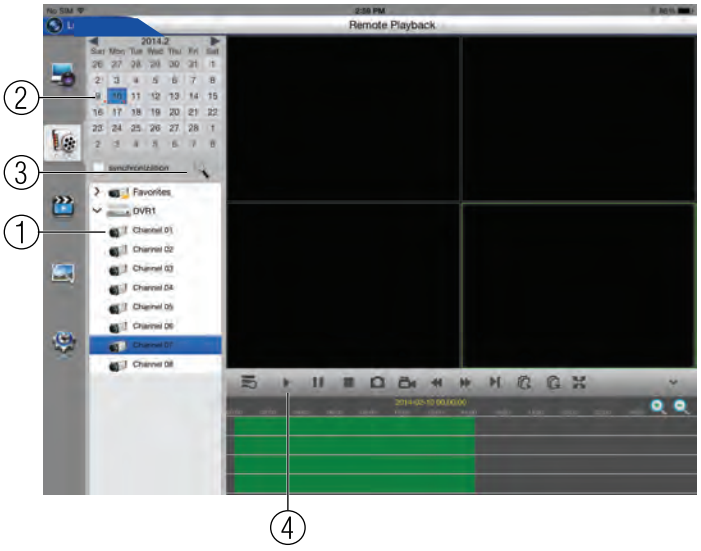
1. Tap .

To open video for playback:

1. Drag the DVR or a camera to the display area to open the earliest available recordings from today.

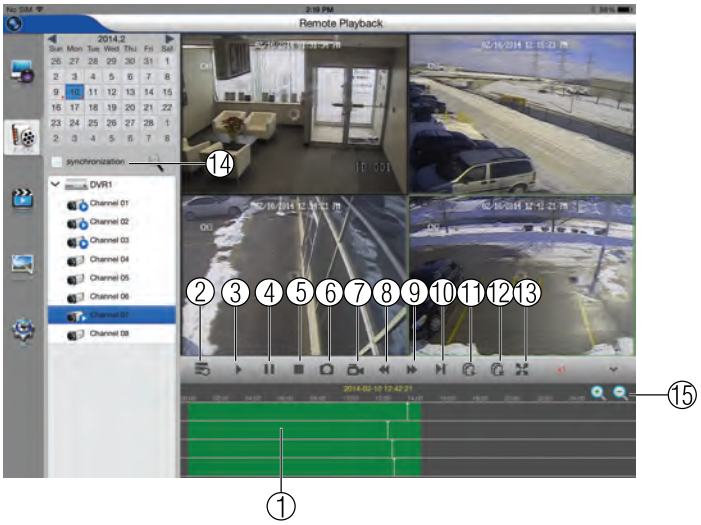


OR



1. Tap cameras to select them. Red dots will appear in the calendar on days that have video available.
2. Tap a day to select it.
3. Tap .
4. Press to start playback. Use the on-screen playback controls.

Remote Playback Controls



1. **Playback Bar**: Tap to select playback time.
2. **Show/Hide Device List.**
3. **Play.**
4. **Pause.**
5. **Stop.**
6. **Screenshot**: Tap to take a screenshot from the currently selected camera.
7. **Manual Record**: Tap to start recording the currently selected camera. Tap again to stop recording.
8. **Slow.**
9. **Fast Forward.**
10. **Single Frame.**
11. **Play All.**
12. **Close All.**
13. **Full-screen.**
14. **Synchronization**: Synchronizes playback time across all cameras when checked.
15. **Change Scope**: Change the time range shown on the playback bar.

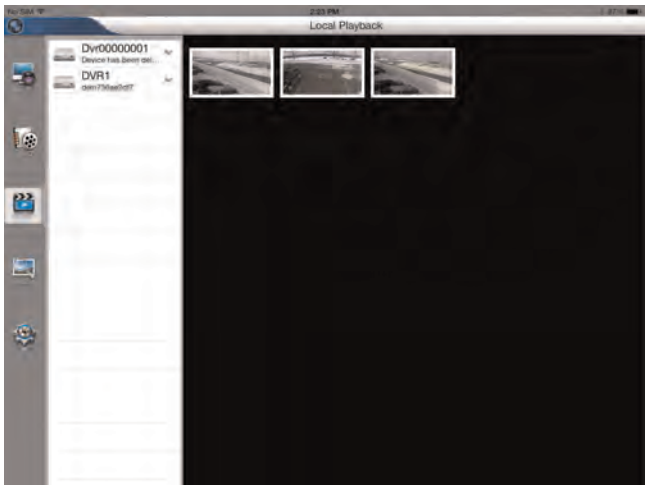
18.3.8 Viewing Screenshots

You can view screenshots using the app.

To view screenshots:

1. Tap .
2. Select the DVR with screenshots you would like to view. Then, select the day you would like to open.

3. Tap the screenshot you would like to view.

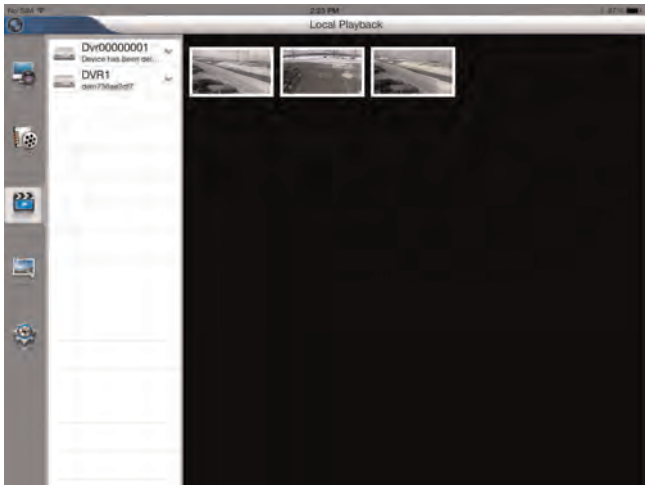


18.3.9 Viewing Manual Recordings

You can view manual recordings using the app.

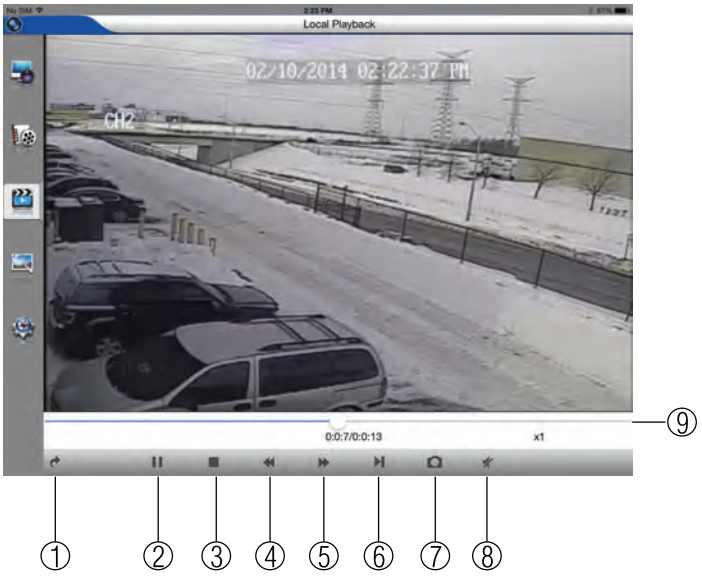
To view manual recordings:

1. Tap .
2. Tap the DVR you would like to view manual recordings from. Then, select the day you would like to open.
3. Tap the recording file you would like to view.



4. Use the on-screen playback controls.

Manual Record Playback Controls



1. **Back**: Tap to select a different video file.
2. **Pause/Play.**
3. **Stop.**
4. **Slow.**
5. **Fast Forward.**
6. **Next Frame.**
7. **Screenshot.**
8. **Mute/Unmute.**
9. **Playback Bar**: Select playback time.

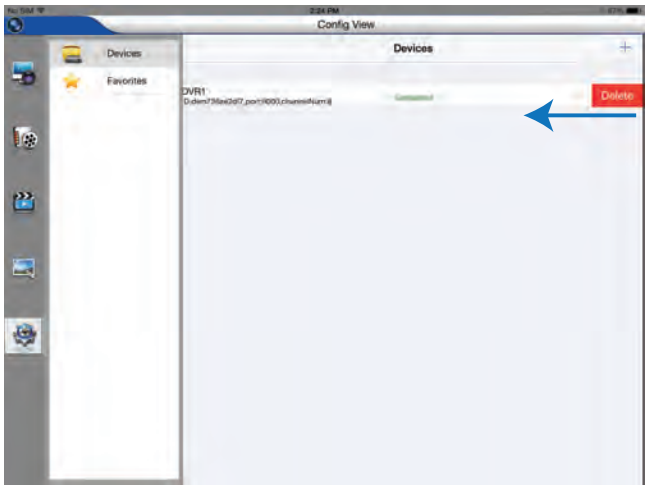
18.3.10 Using Device Manager to Manage DVRs

You can use the Device Manager to add, delete, or modify your DVRs.

To delete a DVR:

1. Tap .

2. Swipe to the left on the DVR you would like to delete and tap **Delete**.



3. Tap **Delete** to confirm.

To modify a DVR:

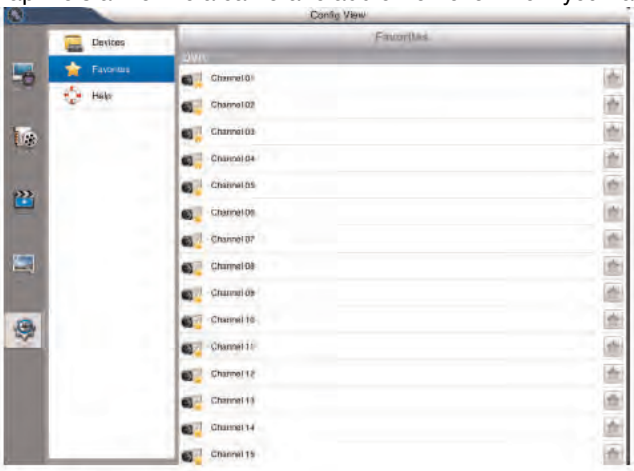
1. Tap .
2. Tap on the DVR you would like to modify.
3. Change the connection details as needed and then tap **Save**.

18.3.11 Managing Favorites

You can use Device Manager to add or remove cameras from your favorites list. Your favorites list appears in the Live View and Remote Playback modes for quick access to certain cameras.

To add/remove favorites:

1. Tap .
2. Tap **Favorites**.
3. Tap the star next to a camera to add or remove it from your favorites.



18.4 Android

Use the **Lorex Eco Stratus** application to connect to your DVR on an Android smartphone or tablet.

Note
The instructions below may differ depending on the model of your Android device.

Prerequisites

- Connect your DVR to your router using an Ethernet cable.
- **Make sure to upgrade your DVR to the latest firmware version.** You must have the latest DVR firmware and mobile apps to connect to the DVR over the Internet.

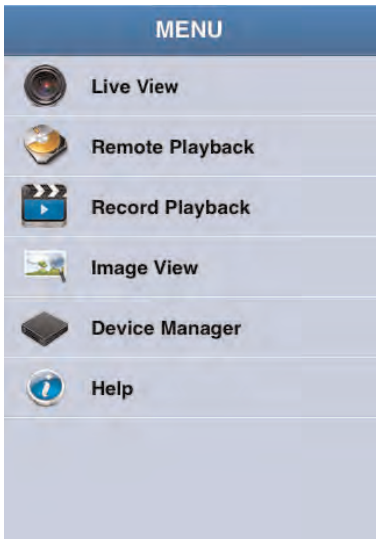
Note
For the latest list of supported apps and devices, visit www.lorextechnology.com/support.

18.4.1 Connecting to Your System Using Lorex Eco Stratus

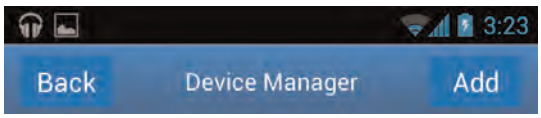
1. Install **Lorex Eco Stratus** from the Google Play Store.

Note
For support on downloading or installing Android apps, consult your Android device's instruction manual or the manufacturer's support site.

2. Tap the Lorex Eco Stratus icon ( ) to open the app.
3. Tap **Device Manager**.

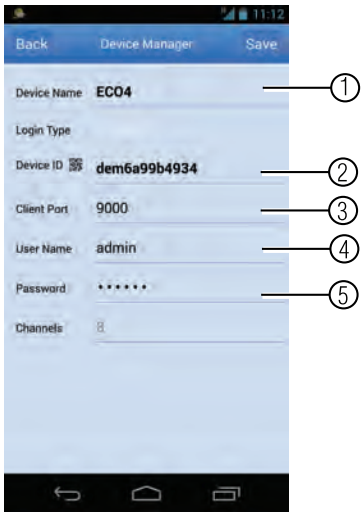


4. Tap **Add**.



5. Configure the following:

EXAMPLE



5.1. Under **Device Name**, enter a name for your DVR of your choice.

5.2. Press the QR code icon ( ) next to **Device ID** and line up the QR code on the top of the DVR using the camera on your device.
OR

If your device does not have a camera, manually enter the **Device ID** printed on the label.

5.3. Under **Client Port**, enter the **DVR's Client Port** (default: **9000**).

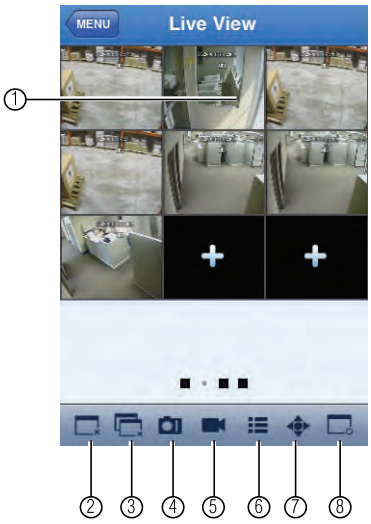
5.4. Under **User Name**, enter the **DVR's User Name** (default: **admin**).

5.5. Under **Password**, enter the **DVR's Password** (default: **000000**).

6. Tap **Save**. If this is the first time connecting to the system, you will be prompted to change the DVR password. Tap **Confirm**. Enter the new 6 character password and tap **Save**. This password will be used to connect to your system from now on.

7. Tap **Save** again to connect to the DVR. The app opens in Live View and streams video from all connected cameras.

18.4.2 Lorex Eco Stratus Interface



1. **Live View**: Tap a channel to select it. Double tap to view a channel in full screen. Swipe left or right to change cameras or pages.
2. **Disconnect selected channel.**
3. **Disconnect/connect all channels**.
4. **Screenshot.**
5. **Manual Record.**
6. **Select Device.**
7. **PTZ Controls.**
8. **Select Display Mode.**

18.4.3 Taking Screenshots

1. Tap during live view or playback.
   - **If taking screenshots from live view:** Select the grid area you would like to take a screenshot from or tap to take a screenshot from all connected cameras.

2. To view screenshots, see 18.4.7 *Viewing Screenshots*, page 121.

18.4.4 Taking Manual Recordings

1. Tap during live view or playback.
   - **If taking manual recordings from live view:** Tap the grid area you would like to start recording on. Tap again when you would like to stop recording.
   - **If taking manual recordings from playback:** Tap when you would like to stop recording.
2. To view manual recordings, see 18.4.8 *Viewing Manual Recordings*, page 123.

18.4.5 Using PTZ Controls

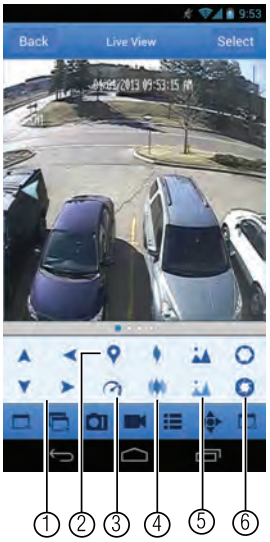
If you have a PTZ camera (not included) connected, you may control it using the app.

Note
You must configure the system to communicate with the PTZ camera locally before you can control it using the app. For details, see 21 *Connecting a PTZ Camera (LH160 Series)*, page 132.

To use PTZ Controls:

1. Tap the channel with your PTZ camera.
2. Tap to open PTZ controls.
3. Double-tap the channel to select it in full screen.
4. Use the PTZ controls.

PTZ Camera Controls



1. **Directional Arrows**: Click the arrows to control the camera.
2. **Call Preset.**
3. **Set Speed.**
4. **Zoom In/Out.**
5. **Focus In/Out.**
6. **Iris In/Out.**

18.4.6 Using Remote Playback Mode on Android

Remote Playback Mode allows you to view recorded video saved on your DVR's hard drive.

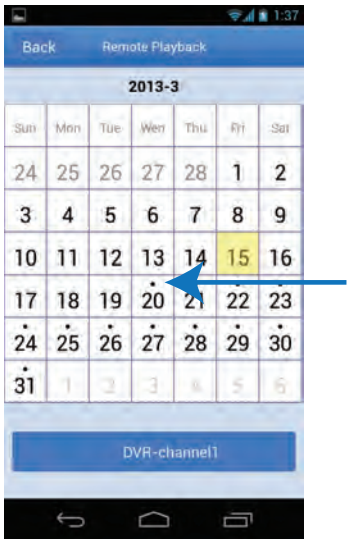
To use remote playback mode:

1. From the Main Menu, tap **Remote Playback**.

2. Tap **Select Channel**. Select the channel you would like to playback from.

Note
If you receive the message "No video found," close the app and restart it.

3. The calendar shows any days that have recorded video for the selected channel with dots under the date. Tap on a date to view video from that day. Swipe up or down to change the month shown in the calendar.



4. Playback begins at the earliest available recordings from the selected day. Use the on-screen playback controls.

Remote Playback Controls

1. **Playback Bar**: Shows times with recorded video available.
2. **Pause/Play.**
3. **Stop.**
4. **Slow Playback.**
5. **Fast Forward.**
6. **Take Screenshot.**
7. **Manual Record**: Tap to start/stop manual recording.
8. **Mute/Unmute.**
9. **Zoom**: Change scope of times shown in Playback Bar.

18.4.7 Viewing Screenshots

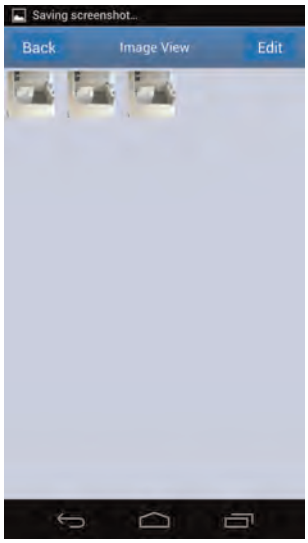
You can view screenshots or share them using the app.

Note
To share screenshots, you must configure the apps used for sharing. Lorex does not support 3rd party applications.

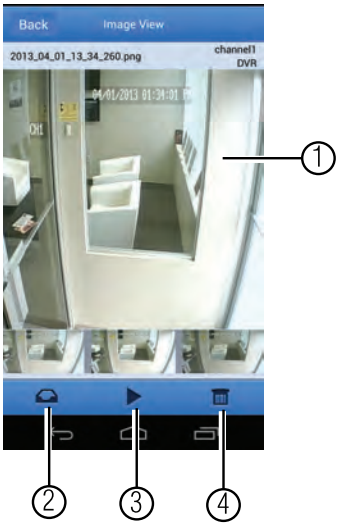
To view screenshots:

1. From the Main Menu, tap **Image Manager**.
2. Select the DVR with screenshots you would like to view.

3. Tap the screenshot you would like to view.



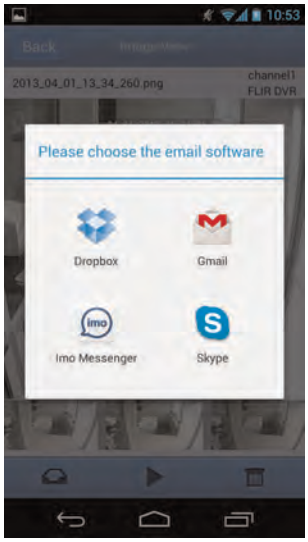
Screenshot Viewing Controls



1. Swipe left or right to select screenshot
2. Tap to share screenshot.
3. Begin slideshow (tap inside the picture to stop the slideshow).
4. Delete screenshot.

To share screenshots:

1. Tap to share. Select an app that you would like to share the file with. Follow the app's instructions to share the file.



18.4.8 Viewing Manual Recordings

You can view manual recordings using the app.

To view manual recordings:

1. From the Main Menu, tap **Record Playback**.
2. Tap the DVR you would like to view manual recordings from.
3. Tap the recording file you would like to view.
4. Use the on-screen controls.

Manual Record Playback Controls

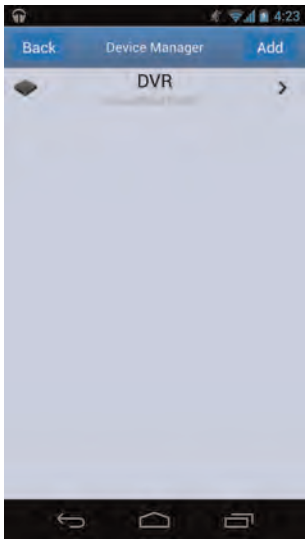
1. **Playback Bar**: Select playback time.
2. **Take Screenshot.**
3. **Slow.**
4. **Pause.**
5. **Play/Stop.**
6. **Fast Forward.**
7. **Step forward**: Advance the video one frame.
8. **Mute/Unmute.**

18.4.9 Using Device Manager to Manage DVR's

You can use the Device Manager to add, delete, or modify your DVR's.

To delete a DVR:

1. From the Main Menu, tap **Device Manager**.
2. Press and hold on the DVR you would like to delete and then tap **Delete**.



To modify a DVR:

1. From the Main Menu, tap **Device Manager**.
2. Tap on the DVR you would like to modify.
3. Change the connection details as needed and then tap **Save**.

19 Lorex Player 11: Playing Backed up Video on PC

Lorex Player 11 allows you to view your backed up video files from your DVR on your PC.

Note
To view backed up video files on Mac, see 20 *Lorex Player for Mac: Viewing Backed up Video on Mac*, page 130.

Minimum System Requirements

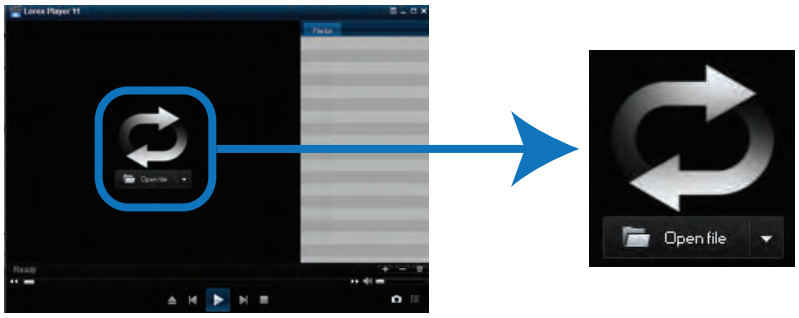
- Intel Pentium 4 or above.
- Microsoft Windows XP/Vista/7/8.
- 256 MB Ram.
- 16 MB video memory.

Prerequisites

- Back up video files from the DVR to your local hard drive.

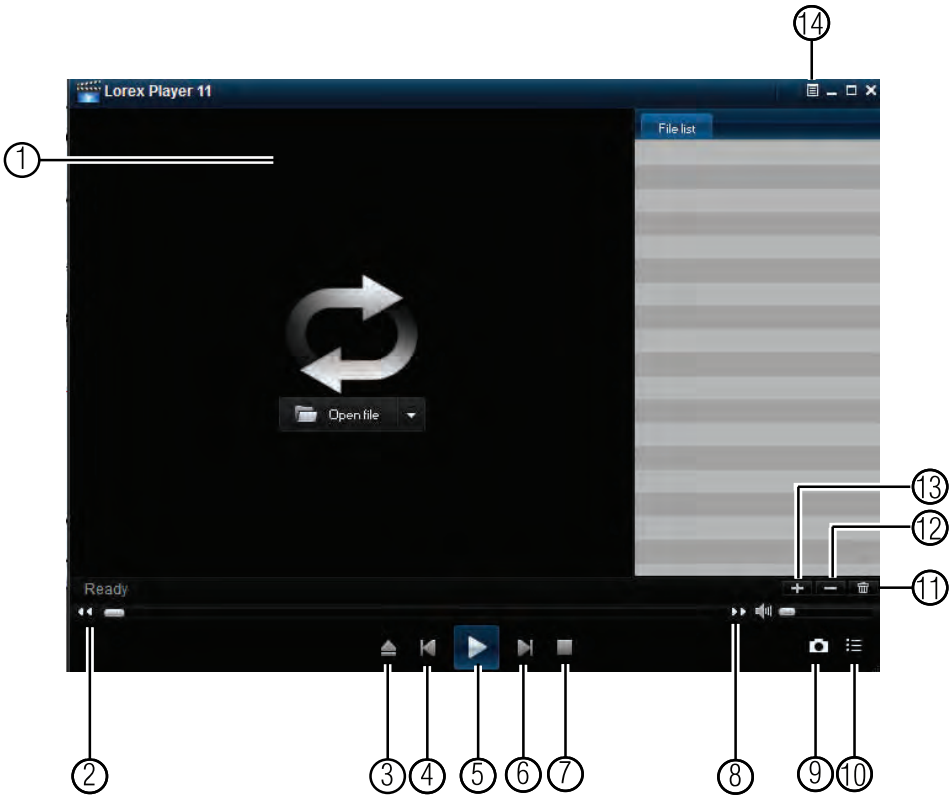
19.1 Running Lorex Player 11

1. Download **Video Player for PC** from www.lorextechnology.com, under the page for your DVR model.
2. Double-click the Lorex Player 11 ( ) icon on the desktop.
3. Click the **Open File** to load a single video file. Click the button next to it to load a folder with backed-up videos.



4. Select the file and click **Open**.
   - If you are opening a folder, click **Add**.
5. Double-click the file in the list on the right to begin playback.

19.2 Lorex Player 11 Interface Overview



1. **Video Window.**
2. **Rewind.**
3. **Open File.**
4. **Previous File.**
5. **Play.**
6. **Next File.**
7. **Stop.**
8. **Fast Forward.**
9. **Take Screenshot.**
10. **Hide/Show Playlist.**
11. **Delete File.**
12. **Remove File.**
13. **Add File.**
14. **Advanced Config Menu.**

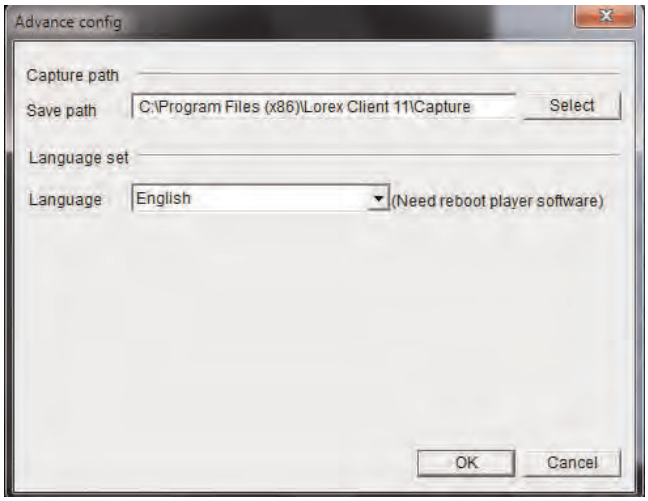
19.2.1 About the Advanced Config Menu

The Advanced Config menu allows you to select where the screen captures are stored.

To open the Advanced Config menu:

1. Click the button.

2. Click **Select** to change the snapshot save folder. Then select the folder and click **OK**.



3. Click **OK** to save changes.

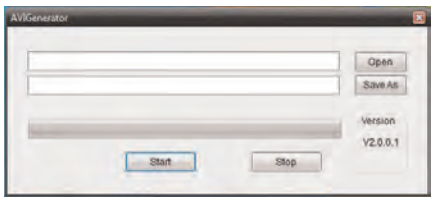
19.3 Converting Backed Up Video to AVI Files

The DVR saves its backup files as proprietary video files. To share these files, you must convert them into .AVI files. Note that the AVI generator can also back up audio from audio-enabled cameras.

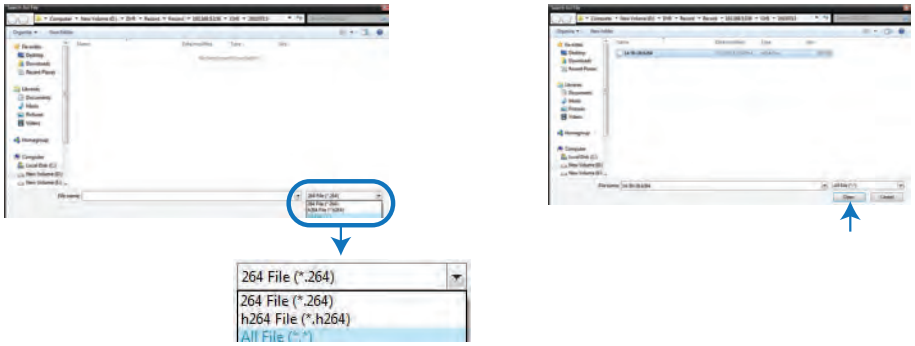
Note
The AVI Generator is only available for PC.

To start the AVI Generator:

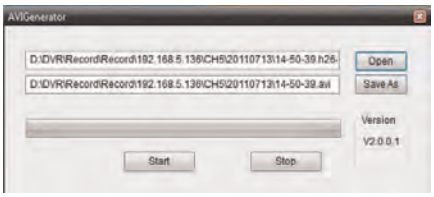
1. Download and install **AVI Generator for PC** from www.lorextechnology.com, under the page for your DVR model.
2. Double-click the **AVI Generator** shortcut on the desktop ( ).
3. Click Open and then locate the backed up video file on your hard drive.



4. Select the desired file format (.264 , h.264, All File) that you wish to search for. Click **Open**.



5. Click **Start** to convert and save the file in the default save folder.
   - Or click **Save As** to select a desired save folder, then click **Start** to convert the file.



6. Locate the file in the folder you selected in step 4.

20 Lorex Player for Mac: Viewing Backed up Video on Mac

Lorex Player for Mac allows you to view your backed up video files on a Mac computer.

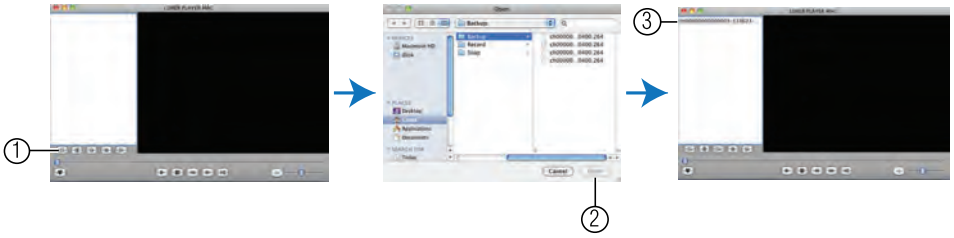
To install Lorex Player for Mac:

1. Go to www.lorextechnology.com and search for the model number of your DVR (look at the label underneath your DVR for the model number).
2. Navigate to the product page for your DVR model and download **Video Player for MAC**.
3. Extract the file and double-click the Lorex Player for Mac installer (**.pkg**) file. Follow the on-screen instructions to install the software.

   Launching Lorex Player for Mac:

   - Click the Lorex Player for Mac icon ( ) in the Dock or in your Applications List in Finder.

20.1 Opening Individual Video Files



1. Click the Load new file button ( ).
2. Browse and select the desired file. Click **Open** to add the file to the video playlist.

   Note
   The default save directory is in your Home folder/dvr.

3. Double-click the video file in the playlist to begin playback.

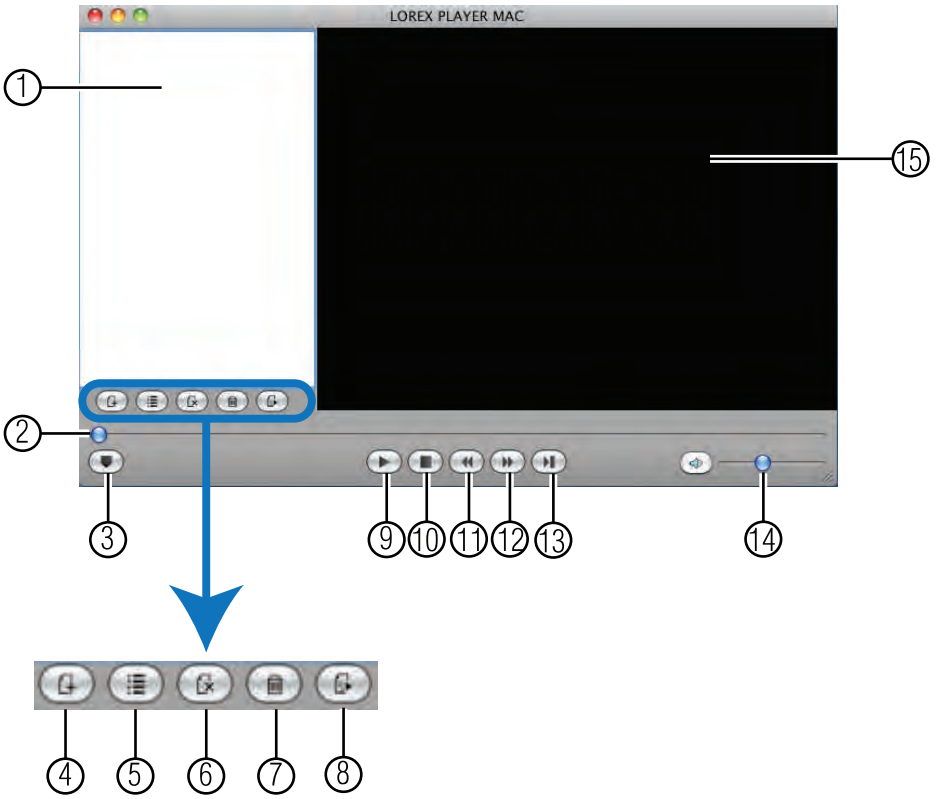
20.2 Loading Multiple Video Files

You can load an entire folder of video files.

To load multiple video files saved onto your hard drive:

1. Click the Load folder button ( ).
2. Select the desired folder you wish to add to the playlist. Click **Open** to add all the videos in the folder.
3. Double-click the video file in the playlist to begin playback.

20.3 Lorex Player for Mac Interface



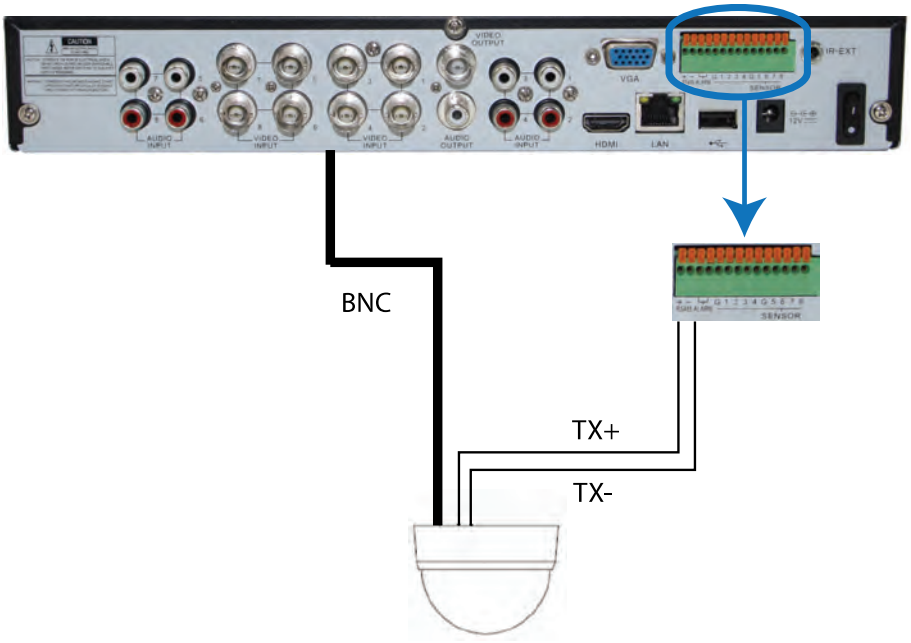
1. **Video Playlist.**
2. **Video Slider.**
3. **Hide/Show Playlist.**
4. **Load File.**
5. **Load Folder.**
6. **Remove Selected File.**
7. **Clear Playlist.**
8. **Looped Playback.**
9. **Play.**
10. **Stop.**
11. **Rewind.**
12. **Fast Forward.**
13. **Step Forward.**
14. **Volume.**
15. **Video Window.**

21 Connecting a PTZ Camera (LH160 Series)

You can connect RS-485 PTZ cameras (not included) to the RS485 ports on the rear panel.

To connect a PTZ camera to the system:

1. Connect the Transmit+ (TX+) Cable to the **+** side of the RS485 port on the rear panel.
2. Connect the Transmit- (TX-) Cable to the **-** side of the RS485 port on the rear panel.
3. Connect the video cable to a BNC port.



21.1 Configuring PTZ Settings

Before you can use the PTZ controls, you must enter your camera's PTZ protocol details into the DVR.

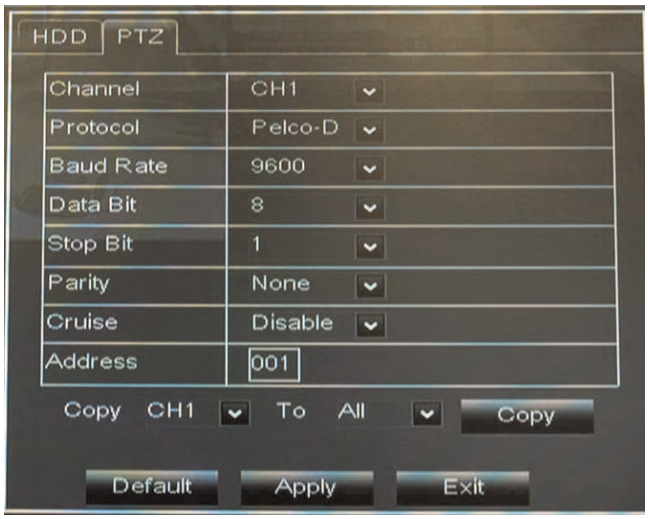
Prerequisite:

- Obtain the PTZ protocol details for your camera. Check your camera's instruction manual for details.

To enter PTZ camera settings in the DVR:

1. Right-click to open the Menu Bar and click the Main Menu button ( ). Enter the system password (default: **000000**).
2. Click **Device** and select the **PTZ** tab.

3. Configure the following according to your PTZ camera's specifications:



- **Channel**: Select the channel the PTZ camera is connected to.
- **Protocol**: Select from **Pelco-D** or **Pelco-P**.
- **Baud rate**: Select the PTZ camera's baud rate.
- **Data Bit**: Select from **5~8** data bits.
- **Stop Bit**: Select from **1** or **2** stop bits.
- **Parity**: Select from **None, Odd, Even, Mark**, or **Space**.
- **Cruise**: Select **Enable** to enable PTZ cruise.
- **Address**: Enter the PTZ camera's address.

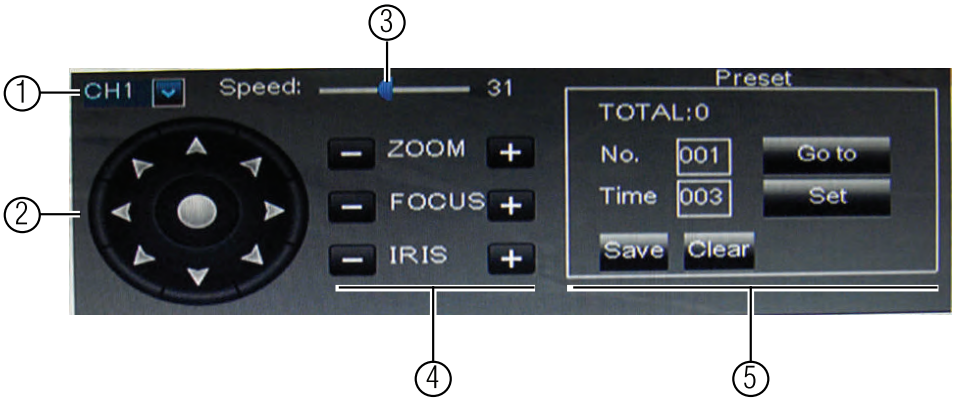
4. Click **Apply** to save your settings.

21.2 Using the PTZ Menu (Local DVR)

To control the PTZ camera locally on your DVR:

1. Select the channel that the PTZ camera is connected to.
2. Right-click and press the PTZ button ( ). Enter the system password. The PTZ menu opens.
3. Use the on-screen PTZ controls to control the camera.

PTZ Controls

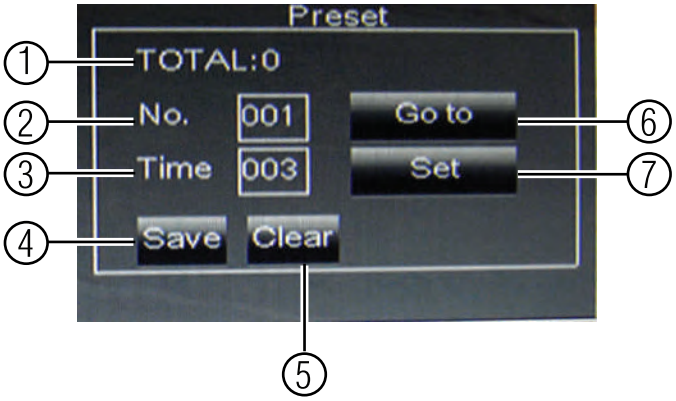


1. **Channel:** Select the channel the PTZ camera is connected to.
2. **Direction Keys:** Click to pan and tilt the camera.
3. **Speed Slider:** Increase or decrease the pan and tilt speed.
4. **Zoom/Focus/Iris Controls.**
5. **Preset Controls**

21.3 PTZ Presets and PTZ Cruise

You can set preset positions for your PTZ cameras. You can also use PTZ cruise to have the camera automatically cycle through presets.

21.3.1 PTZ Preset Controls

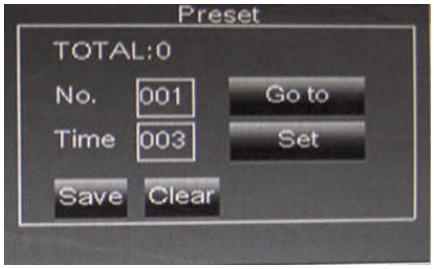


1. **Total**: Total number of presets.
2. **No.**: Shows the number of the currently selected preset. Enter the desired preset number to select or configure a different preset.
3. **Time**: When cruise mode is activated, the time field determines how long the camera will hold at the preset position before moving to the next preset. When creating presets, enter the number of seconds the camera will stay at the preset.
4. **Save**: Click to save all changes made to presets.
5. **Clear**: Click to delete the current preset.
6. **Go to**: Click to go to the currently selected preset.
7. **Set**: Click to save the current camera position as a preset.

21.3.2 Setting PTZ Presets

1. Using the PTZ controls, move the camera into position.

2. (Optional) In the **Time** field, select the number of seconds the camera will remain in that position during PTZ cruise before going to the next position.
3. Click **Set** to set the preset. The Total and No. field will automatically increase. The Total field shows you the total number of created presets, and the No. field shows you the number of the preset you are currently creating.



4. Complete the steps above to create additional presets as needed. Press **Save** when you are finished to save all created presets.

21.3.3 Selecting PTZ Presets

1. In the **No.** field, select the number of the preset you would like to select.
2. Click **Go to** to go to the preset.

21.3.4 Deleting PTZ Presets

1. In the **No.** field, select the number of the preset you would like to delete.
2. Click **Clear** to delete the preset and click **Save** to save your changes.

21.3.5 Starting / Stopping PTZ Cruise

When PTZ cruise is enabled, the camera will cycle through saved presets. You must set and save presets to use PTZ cruise.

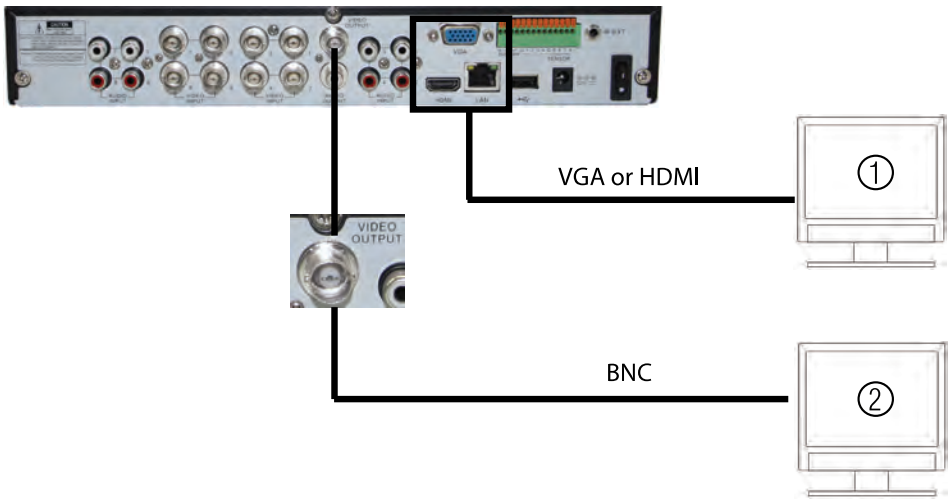
To start / stop PTZ cruise:

1. Right-click to open the Menu Bar and click the Start Cruise button ( ). Enter the system password. The camera will cycle through PTZ presets.
   - To stop the PTZ cruise, right-click to open the Menu Bar and click the Stop Cruise button ( ). Enter the system password.

22 Connecting Additional External Monitors (LH160 Series)

Connect one monitor to the **VGA** port and one to the **HDMI** port to display the system interface on two monitors simultaneously.

Use the **Video Output** port (BNC) on the rear panel of the system to connect an external monitor. This is useful if you need to monitor the system from a second location (e.g. a back office).



1. **Primary Monitor/TV (Not Included).**
2. **External Monitor (Not Included).**

Note
You can press **0** on the remote control three times to switch the mouse and system interface between the monitor connected to the VGA/HDMI port and the monitor connected to the Video Output port.

22.1 Connecting the DVR to TV RCA Ports

To connect the DVR to a television using RCA cables, connect a BNC to RCA adapter (not included; Lorex model# BNCA) to the **Video Output** port.

BNC to RCA Adapter

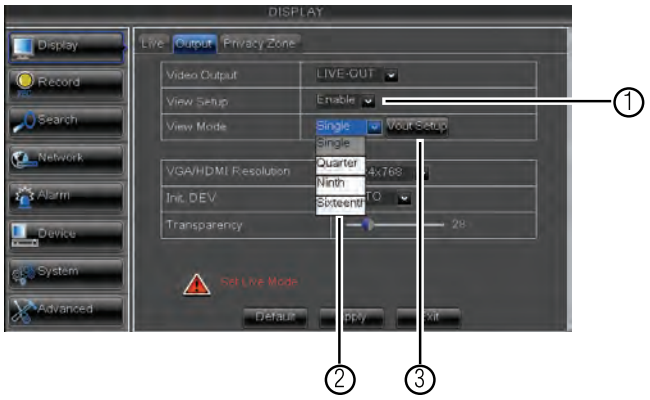
22.2 Customizing the Channel Arrangement on the External Monitor

You can use the steps below to create a custom split-screen display on a secondary monitor connected to the **Video Output** port (BNC).

To customize the channel arrangement on the external monitor:

1. Connect an external monitor the **Video Output** port, as shown above.
2. Press **0** three times on the remote control to move the mouse and system interface to the monitor connected to the Video Output port.
3. Right-click and click the Main Menu button ( ).

4. Click **Display>Output**.



4.1. Under **View Setup**, select **Enable**. This lets you select and arrange the channels you want to show on the screen.

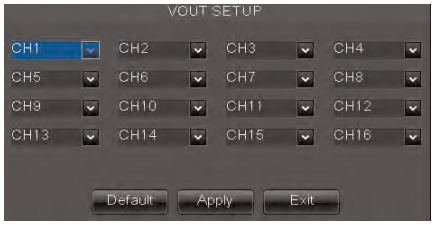
> **Note**
> Enabling View Setup disables your ability to change channels the normal way on the selected monitor. You will need to disable View Setup to return to normal operation.

4.2. Under **View Mode**, select the desired viewing mode: **Single**, **Quad**, **Nine**, **Sixteen**, or **Twentyfive**.

> **Note**
> The options available depend on the number of channels your DVR has.

4.3. Click **Vout Setup**. A menu appears that allows you to select the arrangement of channels.

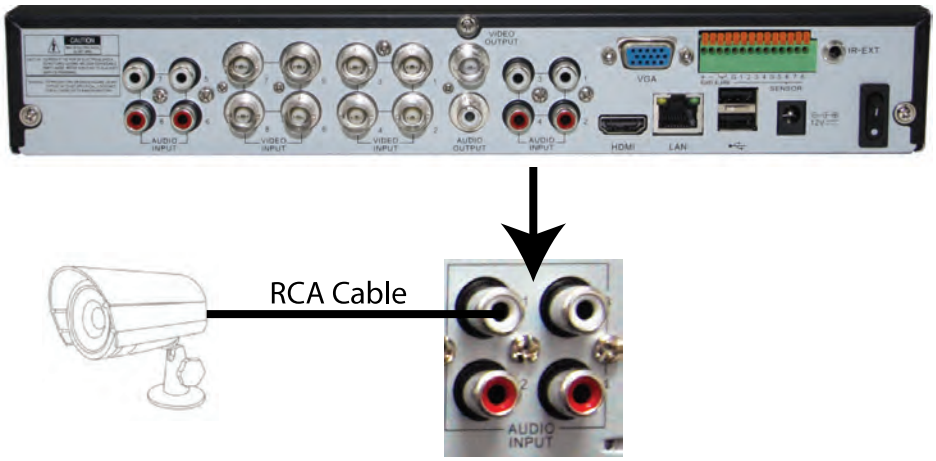
5. Click the drop-down menus to select which channels to show on the screen and the arrangement of channels.



6. Click **Apply** to save changes. Click **Ok**. Right-click repeatedly to and return to live viewing.
7. Press **0** on the remote control 3 times to restore the system interface to the VGA/HDMI monitor.

23 Recording Audio (LH160 Series)

The system can also record audio for up to: 8 channels (8-channel models) or 4 channels (12/16/24 channel models). You must have audio-capable cameras (not included) or self-powered microphones (not included) in order to record audio on the system.



To enable audio recording:

1. Connect the BNC video cable from the camera to a **Video Input** port between **1** and **4** (12/16/24-channel models) or to any **Video Input** port (8-channel models). For example, connect the camera to **Video Input** port 1.
2. Connect the RCA audio cable from the camera to the corresponding **Audio Input**. Following the example in step 1, you would connect the cable to **Audio Input** port 1.
3. Right-click to open the Menu Bar and click the Main Menu button ( ).
4. Click **Record** and select the **MainStream** tab.

5. Ensure the **Audio** checkbox is checked next to the channel the audio-enabled camera is connected to.
6. Click **Apply** to save your changes.

24 Replacing the Hard Drive (LH160 Series)

The system comes with a pre-installed SATA hard drive. You can expand the hard drive to the following configurations:

- **8/12/16–Channel models**: You can replace the existing hard drive with a 3.5” or 2.5” SATA hard drive up to 4TB.
- **24–Channel models**: These models have two hard drive bays and can be expanded with a maximum of two 3.5” or 2.5” SATA hard drives of up to 4TB each.

Note
It is recommended to use surveillance or security-certified hard drives, which are designed to be reliable over long periods of time while recording 24/7. Security-certified hard drives are available at www.lorextechnology.com.

24.1 Removing the Hard Drive

The steps to remove the hard drive differ depending on the number of channels your DVR has.

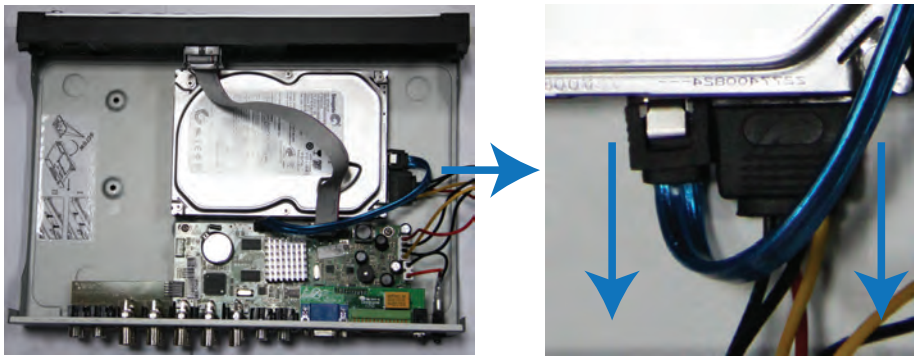
24.1.1 8/12/16–Channel

WARNING

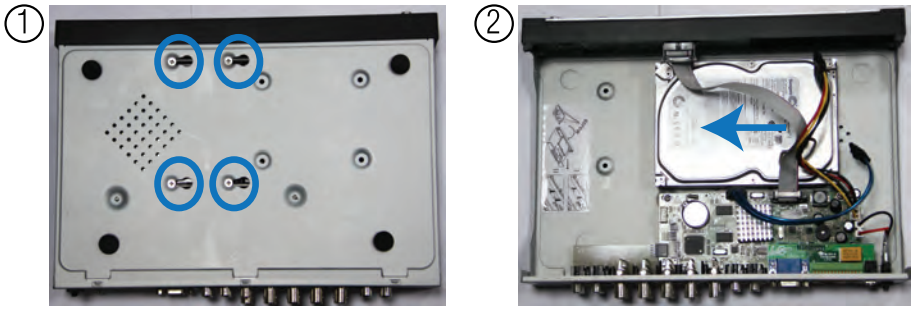
Make sure that the power cable has been disconnected before changing the hard drive.

1. Remove the screw from each side panel and rear panel (x3) of the cover.

2. Gently slide the cover away from the rear panel and lift off. Be careful of sharp edges.
3. Disconnect the power and data cables.



4. Next, remove the hard drive from the housing. This step depends on if you are using a 3.5” or 2.5” hard drive:
   If your system has a 3.5” hard drive:



   4.1. Turn the DVR over carefully and loosen the 4 screws securing the hard drive.
   4.2. Turn the DVR back over and slide the hard drive and lift out of the DVR.
   4.3. Remove the 4 screws on the bottom of the hard drive.

   If your system has a 2.5" hard drive:

   4.1. Hold the hard drive in place and remove the 4 screws securing the hard drive. Keep holding the hard drive and turn the DVR back over. Remove the hard drive from the DVR.

> ⚠ **WARNING**
>
> Make sure to hold the hard drive in place while removing the hard drive screws and turning the DVR to avoid damaging the DVR.

5. Replace the side and cover panel screws.

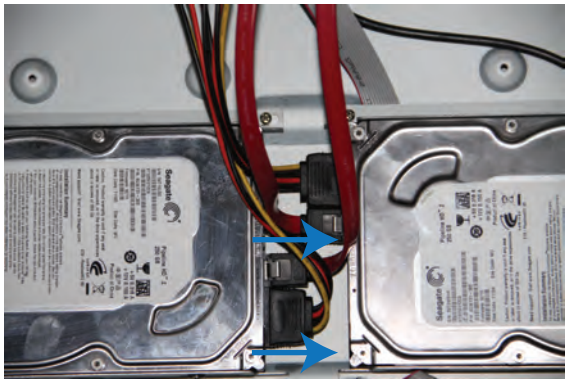
24.1.2 24–Channel

> ⚠ **WARNING**
>
> Make sure that the power cable has been disconnected before changing the hard drive.

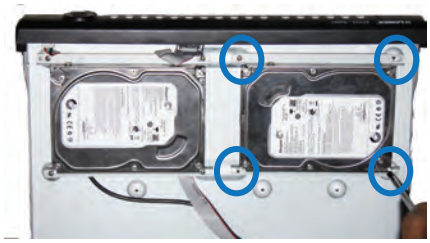
1. Remove the screws from each side panel (x2) and rear panel (x4) of the cover.

2. Gently slide the cover away from the rear panel and lift off. Be careful of sharp edges.

3. Disconnect the power and data cables.



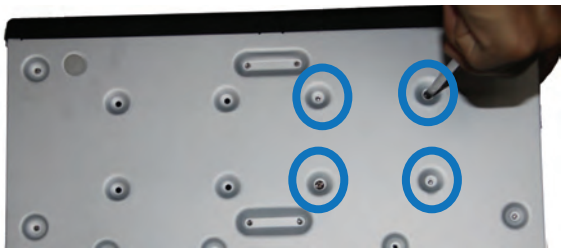
4. Next, remove the hard drive from the housing. This step depends on if you are using a 3.5” or 2.5” hard drive:
If your system has a 3.5” hard drive:

① 

②

4.1. Remove the 4 screws holding the hard drive bracket and remove the bracket from the DVR.
4.2. Remove the 4 screws securing the hard drive to the bracket and remove the hard drive from the bracket.
4.3. Replace the hard drive bracket and hard drive bracket screws.

If your system has a 2.5" hard drive:



4.1. Turn the DVR over carefully. Hold the hard drive in place and remove the 4 screws securing the hard drive. Keep holding the hard drive and turn the DVR back over. Remove the hard drive from the DVR.

> ⚠ **WARNING**
>
> Make sure to hold the hard drive in place while removing the hard drive screws and turning the DVR to avoid damaging the DVR.

5. Replace the DVR cover. Replace the side and cover panel screws.

24.2 Installing the Hard Drive

The steps to install a hard drive differ depending on the number of channels your DVR has.

24.2.1 8/12/16–Channel

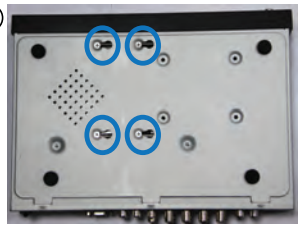
⚠ WARNING
Make sure that the power cable has been disconnected before changing the hard drive.

1. Remove the screw from each side panel and rear panel (x3) of the cover.

2. Gently slide the cover away from the rear panel and lift off. Be careful of sharp edges.
3. Next, install the hard drive. This step depends on if you are installing a 3.5” or 2.5” hard drive.

If you are installing a 3.5” hard drive:

① ② ③



3.1. Insert 4 hard drive screws into the bottom of the hard drive and tighten them 1/2 of the way.
3.2. Place the hard drive in the screw slots with the power and data connectors facing left (if looking at the DVR from the front), and slide the hard drive into place.
3.3. Tighten the hard drive screws to secure the hard drive in place.

If you are installing a 2.5” hard drive:

3.1. Place the hard drive over the screw holes. Hold the hard drive in place and turn the DVR over carefully. Insert 4 screws to secure the hard drive. Turn the DVR back over.

⚠ WARNING
Make sure to hold the hard drive in place while inserting the hard drive screws and turning the DVR to avoid damaging the DVR.

4. Connect the power and data cables.

5. Replace the DVR cover. Replace the side and cover panel screws.

24.2.2 24–Channel

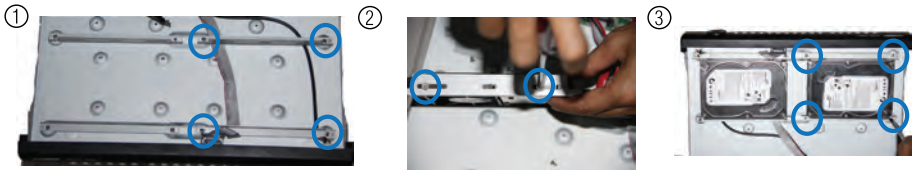
⚠ **WARNING**
Make sure that the power cable has been disconnected before changing the hard drive.

1. Remove the screws from each side panel (x2) and rear panel (x4) of the cover.

2. Gently slide the cover away from the rear panel and lift off. Be careful of sharp edges.

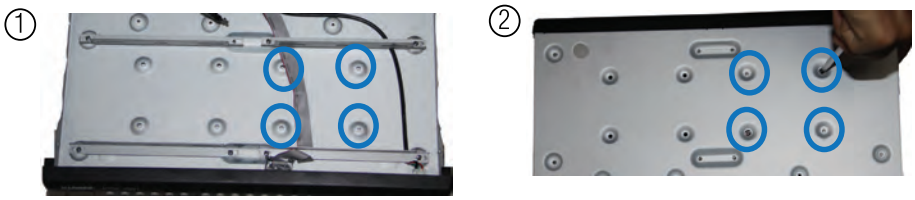
3. Next, install the hard drive. This step depends on if you are installing a 3.5” or 2.5” hard drive.

If you are installing a 3.5” hard drive:



3.1. Remove the 4 screws holding the hard drive bracket and remove the bracket from the DVR.
3.2. Place the hard drive in the bracket and insert 4 screws to secure the hard drive to the bracket.
3.3. Place the hard drive and bracket back in the DVR with the power and data connectors facing the middle and replace the hard drive bracket screws.

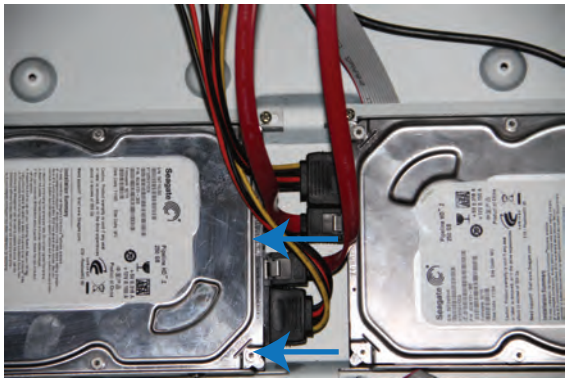
If you are installing a 2.5” hard drive:



3.1. Place the hard drive over one of the two sets of screw holes with the power and data connectors facing the center of the DVR.
3.2. Hold the hard drive in place and carefully turn the DVR over. Insert 4 hard drive screws to secure the hard drive. Turn the DVR back over.

> **WARNING**
>
> Make sure to hold the hard drive in place while inserting the hard drive screws and turning the DVR to avoid damaging the DVR.

4. Connect the power and data cables.



5. Replace the DVR cover.
6. Replace the side and cover panel screws.

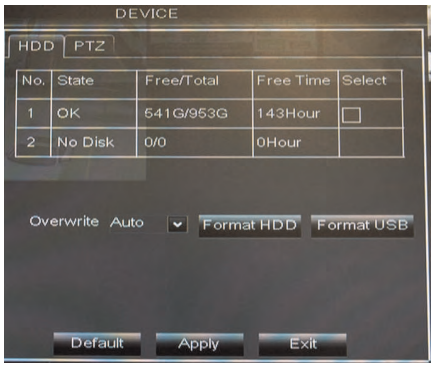
24.3 Formatting the Hard Drive

If you replace the pre-installed hard drive, it *must* be formatted in order to function properly with the system.

⚠ **CAUTION**
Formatting the HDD erases **all data** on the hard disk. **This step cannot be undone.**

To format the hard drive:

1. Right-click to open the Menu Bar and click the Main Menu button ( ).
2. Click **Device**.
3. Click the checkbox under **Select** to choose the drive you wish to reformat.



4. Click **Format HDD**.
5. When the warning window appears, click **OK**. Wait for the system to format the hard drive.

> **Note**
> You may notice that the size of the HDD and the free space are not the same. The system uses a portion of the disk space for the operating system and initialization. This is common in all security DVRs as well as computer hard drives.

25 DDNS Setup (Advanced)

Free Lorex DDNS service is available as an optional connectivity method to connect to your system over the Internet.

DDNS Service is not required to connect to your DVR, since the system supports Lorex Stratus Connectivity. For details on setting up your system using , Lorex Stratus Connectivity see 16 *Connecting to Your DVR Over the Internet on PC or Mac*, page 70.

25.1 Accessing your DVR within a local network (LAN)

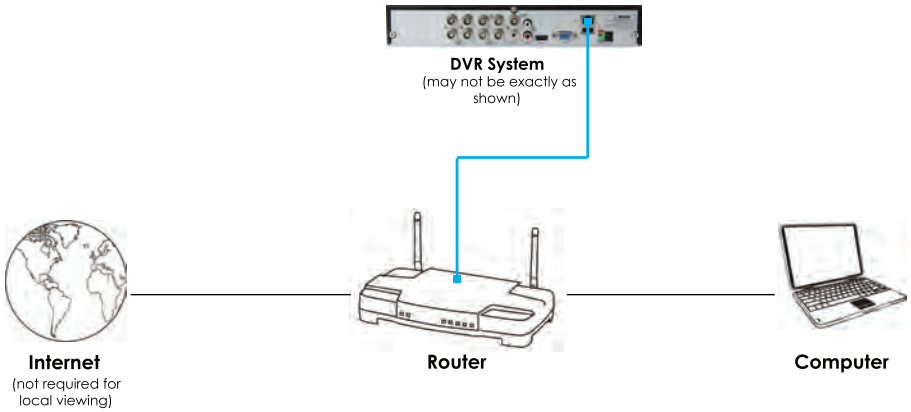
You can connect to your DVR through using the Client Software through the local area network (LAN). It is recommended to confirm connectivity over a local network before setting up your DVR for DDNS connectivity.

Note
To complete the steps below, your computer must be on the same network as your DVR.

Note
Except where noted, the instructions below are the same for PC and Mac.

25.1.1 Step 1 of 3: Connect your DVR to the Local Area Network

1. Power off your DVR by disconnecting the power cable.
2. Connect an Ethernet cable (included) to the **LAN** port on the rear panel of the DVR. Connect the other end of the Ethernet cable to an empty LAN port (usually numbered 1~4) on your router.
3. Reconnect the power cable to power the DVR back on.



25.1.2 Step 2 of 3: Obtain the DVR's Local IP Address

1. Press the button on the front panel or remote control to open the System Information window.
   OR

   Right-click and click the Main Menu button ( ). Enter the DVR password (default: **000000**). Then click **System>Info**.

2. Write down the **IP Address** number of the DVR.
   - A local IP looks something like this: 192.168.5.118. Note that single digit numbers appear as three digits. For example, "005" is the same as "5".

25.1.3 Step 3 of 3: Connect to the DVR's Local IP Address

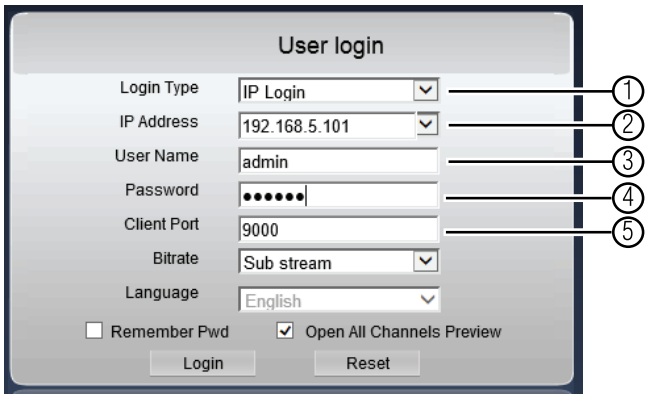
Follow the steps below to confirm connectivity over a local network on a PC or Mac.

To connect using the DVR's local IP address on a PC:

1. Download and install the **Client Software for PC** from www.lorextechnology.com.
2. Once installation is finished, double-click the **Lorex Stratus Client icon ( )** from the desktop. The DVR login screen appears.

3. Configure the following:

EXAMPLE



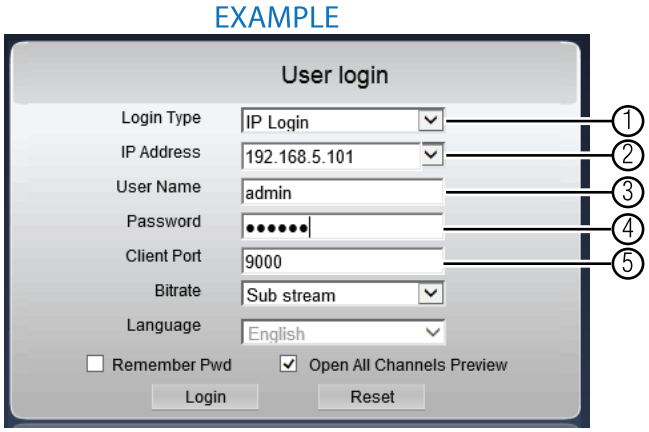
3.1. Under **Login Type**, select **IP Login**.
3.2. Under **IP Address**, enter the **DVR's IP Address** (e.g. *192.168.0.100*).
3.3. Under **User Name**, enter the DVR's **user name** (default: **admin**).
3.4. Under **Password**, enter the DVR's **password** (default: **000000**).
3.5. Under **Client Port**, enter the DVR's Client Port (default: **9000**).

4. Click **Login**.
   - If this is the first time connecting to your system, you will be prompted to change the password. Enter a new 6 character password and click **OK**.

To connect using the DVR's local IP address on a Mac:

1. Visit www.lorextechnology.com and download the **Client Software for Mac**.
2. Extract the installer file and double-click it to install.
3. Open Safari, then click **Safari>Quit Safari**. This resets Safari to complete the installation.
4. Open the Lorex Stratus Client ( ) from the Applications list.

5. Configure the following:



5.1. Under **Login Type**, select **IP Login**.
5.2. Under **IP Address**, enter the **DVR's IP Address** (e.g. *192.168.0.100*).
5.3. Under **User Name**, enter the DVR's **user name** (default: **admin**).
5.4. Under **Password**, enter the DVR's **password** (default: **000000**).
5.5. Under **Client Port**, enter the DVR's **Client Port** (default: **9000**).

6. Click **Login**.

- If this is the first time connecting to your system, you will be prompted to change the password. Enter a new 6 character password and click **OK**.

- Enter the new password in the login screen and click **Login** to connect to the DVR.

25.2 DDNS Setup—Access your DVR Remotely over the Internet

Setting up DDNS connectivity allows you to view your DVR from any computer or compatible mobile device with Internet access.

Note
Except where noted, the instructions below are the same for PC and Mac.

To set up remote connectivity with your DVR, you must:

1. Port forward the HTTP and Client ports (default: **80 and 9000**) on your router to your DVR's IP address.
2. Create a DDNS account.
3. Enable DDNS on the DVR.
4. Test the remote connection by entering your DDNS address in a web browser.

25.2.1 Step 1 of 4: Port Forwarding

You **must** port forward the HTTP and Client ports (default: **80 and 9000**) on your router to your DVR's IP address before you can remotely connect to your system. There are several methods to port forward your router:

- Use the **Easy Connect Auto Port Forwarding Wizard** (PC only) to port forward the required ports (see www.lorextechnology.com for details). For instructions on how to use the Easy Connect Wizard, see the Easy Connect manual on www.lorextechnology.com.
- Manually port forward the required ports on your router to your DVR's IP address by following your router manufacturer's instructions. For more information on port forwarding, see the reference guides on www.lorextechnology.com.

Note
If the above ports are not forwarded on your router, you will not be able to access your system remotely.

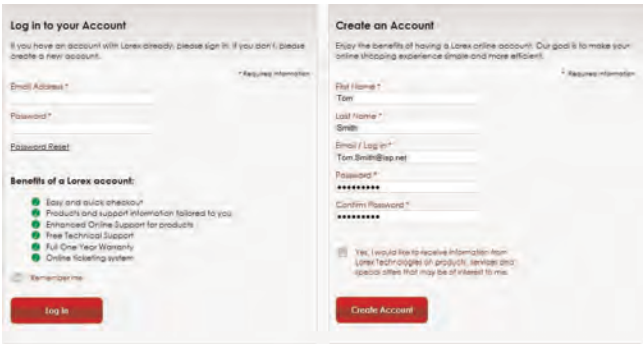
25.2.2 Step 2 of 4: Create a DDNS Account

Lorex offers a free DDNS service for use with your system. A DDNS account allows you to set up a web site address that points back to your local network. This allows you to connect to your system remotely. You must create a DDNS account in the same network as your DVR.

To setup your free Lorex DDNS account:

1. In your browser, go to http://www.lorexddns.net and click **Step 1**.

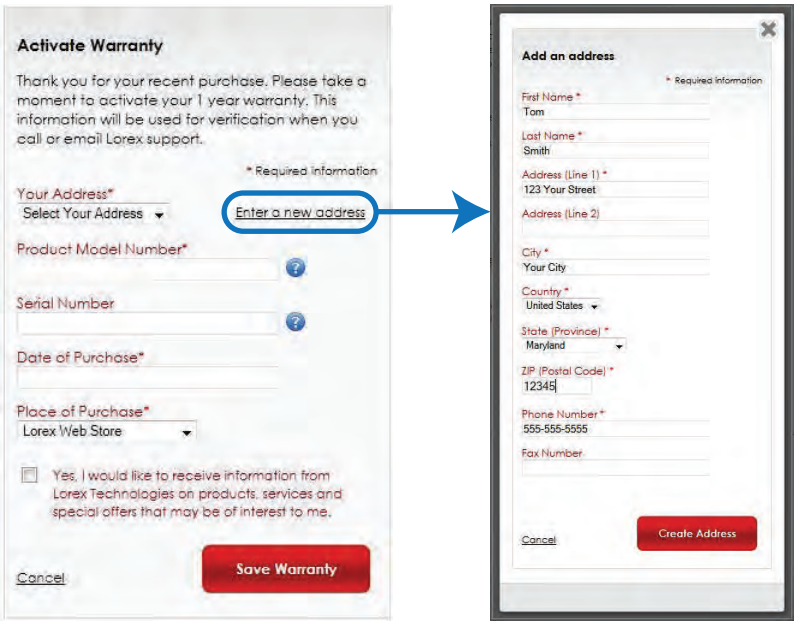
2. The My Lorex account login screen opens (if you are already logged in, skip to step 4). Create a new account or log into an existing account. To create a new account, fill in the required fields on the right and click **Create Account**.



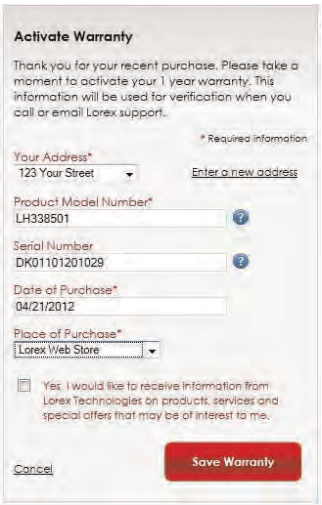
3. Click **Warranties** to register your product for warranty.

Note
Warranty registration is required to register for DDNS.

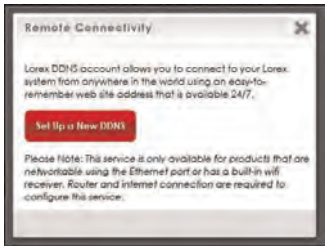
4. The Warranty page opens. Click **Activate Warranty** to register your product for warranty.
5. Under Your Address, select an address or click **Enter a New Address** to create a new address. Fill in your address information and click **Create Address**.



6. Fill in the warranty registration form with your product and purchase details. Check the sticker underneath your DVR for the Product Model Number and Serial Number. Click **Save Warranty**.



7. A page pops up to prompt you to register your product for Lorex DDNS. Click **Set Up a New DDNS**.



8. Configure the following:

8.1. **Product Warranty:** Select the product warranty you created in the previous steps.

8.2. **Device Name:** Enter a name for your device. You can enter your name, business name, or anything of your choice. This is used to identify this device in your list of activated DDNS accounts that appears anytime you visit the DDNS page.

8.3. **MAC Address**: Enter the MAC address of your Lorex product. To find the MAC address:

Press the button on the front panel or remote control to open the System Information window.

OR

Right-click and click the Main Menu button ( ). Enter the DVR password (default: **000000**). Then click **System>Info**.

8.4. **URL Request:** Enter the web site address that will be used to connect to your Lorex product. For example, if you enter *tomsmith*, the address to access your video will be *http://www.tomsmith.lorexddns.net*

9. Click **Save** to register your product for DDNS. A confirmation email will be sent to the email address used to register for My Lorex. **You will need this information to enable remote access to your system.** Record your information below:

Domain name/URL Request:	
DDNS User Name:	
Device DDNS password:	

25.2.3 Step 3 of 4: Enable DDNS on the DVR

To enable DDNS in your DVR:

1. Right-click to open the Menu Bar and click the Main Menu button ( ). Enter the system password if prompted.
2. Click **Network** and select the **DDNS** tab.
3. Configure the following:

3.1. In the **DDNS** drop-down menu, select **Enable**.
3.2. Beside **Server**, select **LOREXDDNS** (default).
3.3. Under **Domain Name**, enter your **Domain name/URL Request** from the confirmation email that was sent after you created your DDNS account.
3.4. Under **User Name**, enter your **DDNS User Name** that was emailed to you after DDNS registration.
3.5. Under **Password**, enter your **DDNS Device password** that was emailed to you after DDNS registration.

4. Click **Apply** to save your settings.

25.2.4 Step 4 of 4: Connect to the DVR's DDNS Address

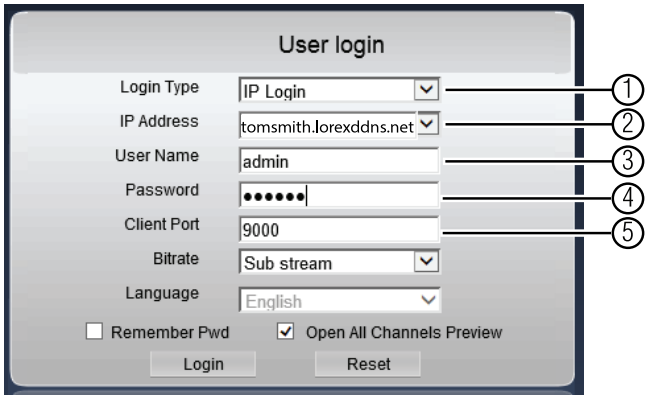
Note
Please allow 10~15 minutes for the DDNS servers to update with your new DDNS address before attempting to connect.

To connect using the DVR's DDNS address on a PC:

1. Install the Lorex Stratus Client on a remote computer.
2. Once installation is finished, double-click the **Lorex Stratus Client icon ( )** from the desktop. The DVR login screen appears.

3. Configure the following:

EXAMPLE



3.1. Under **Login Type**, select **IP Login**.
3.2. Under **IP Address**, enter the **DVR's DDNS Address** (e.g. *http://www.tomsmith.lorexddns.net*).
3.3. Under **User Name**, enter the DVR's **user name** (default: **admin**).
3.4. Under **Password**, enter the DVR's **password** (default: **000000**).
3.5. Under **Client Port**, enter the DVR's **Client Port** (default: **9000**).

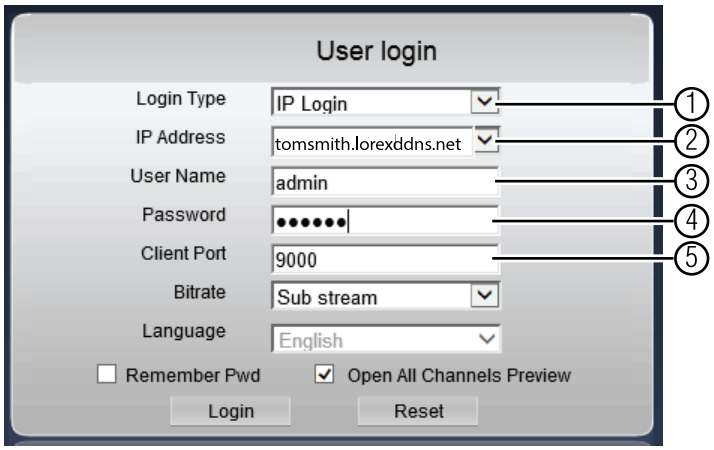
4. Click **Login**.

To connect using the DVR's DDNS address on a Mac:

1. Install the Lorex Stratus Client on a remote computer.
2. Open Safari, then click **Safari>Quit Safari**. This resets Safari to complete the installation.
3. Open the Lorex Stratus Client ( ) from the Applications list.

4. Configure the following:

EXAMPLE



4.1. Under **Login Type**, select **IP Login**.
4.2. Under **IP Address**, enter the **Domain name/URL Request** followed by**.lorexddns.net** (e.g. *http://www.tomsmith.lorexddns.net*).
4.3. Under **User Name**, enter the DVR's **user name** (default: **admin**).
4.4. Under **Password**, enter the DVR's **password** (default: **000000**).
4.5. Under **Client Port**, enter the DVR's **Client Port** (default: **9000**).

5. Click **Login**.

26 Troubleshooting

When a malfunction occurs, it may not be serious and can be corrected easily. The following describes the most common problems and solutions. Please refer to the following before calling Lorex Technical Support:

Error	Possible Causes	Solutions
• System is not receiving power, or is not powering up.	• Cable from power adapter is loose or is unplugged.	• Confirm that all cables are connected correctly. • Confirm that the power adapter is securely connected to the back of the unit.
	• Power switch is set to OFF ( ) position*. * Some models do not have a power switch.	• Confirm that the power switch is in the ON (**I**) position.

	• Cables are connected, but system is not receiving sufficient power.	• Confirm that the system is powered on (LED indicators on the front should be ON).
		• If the unit is connected through a power bar or surge protector, try bypassing the bar and connecting the power directly to the wall outlet.
		• Confirm that there is power at the outlet:
		  • Connect the power cable to another outlet.
		  • Test the outlet with another device (such as a lamp or phone charger).

• Remote control is not detected by the system.	• Battery in the remote control is drained. • There are no batteries in the remote control.	• Install two fresh AAA alkaline batteries in the remote control.
• Hard drive is not detected by the system.	• Hard drive cables are loose or not properly connected.	• Remove the housing and check that hard drive cables are firmly connected.
	• There is no hard drive in the system.	• Open the housing and install compatible hard drive. Make sure to format the drive after installing. For details, see 24 *Replacing the Hard Drive (LH160 Series)*, page 139.
• Hard drive is full (0%) and the unit is no longer recording.	• Overwrite is not enabled.	• From the Main Menu, select DEVICE>HDD. Select Auto under Overwrite and click Apply.

Error	Possible Causes	Solutions
• There is no picture on monitor/TV after connecting it to the DVR.	• Monitor/TV not detected by DVR.	• Power off the monitor/TV and DVR. Power on the monitor/TV, and then power on the DVR.
	• Input channel for DVR not selected on monitor/TV.	• On the monitor/TV, select the input channel the DVR is connected to.
	• Video cable is loose or has become disconnected.	• Check the video cable connection to the DVR and monitor/TV.
	• Video-out resolution has been set to the incorrect setting.	• Press and hold the ■ button on the front panel or remote control until the DVR restarts. The DVR will reset to the default resolution (1024x768).
• Mouse not detected by system.	• Mouse cable is not firmly connected to the system. Mouse is not connected to the system.	• Firmly connect the mouse cable to one of the USB ports.
	• System needs to be reset	• Power off the system (disconnect power cable). Firmly connect a USB mouse to one of the USB ports. Reconnect the power cable to the DC 12V port on the rear panel.
• There is no picture on selected channels / camera picture is not being displayed.	• Camera cables are loose or have become disconnected.	• Check the camera video cable and connections. • Disconnect and reconnect the cable at the system and at the camera. • Try moving the camera to another channel or use another cable.
• The image on the DVR appears, but does not have sound.	• Audio cables are loose or have been disconnected.	• Check the AUDIO Input connections to the DVR.
	• Volume on external speakers (not included) is low or off.	• Increase volume on external speakers (not included).
• The system beeps at startup.		• The beep at startup is normal.
• The system beeps during motion detection.	• Motion detection is enabled and the alarm buzzer is activated.	• Open the Main Menu and click System>Motion. In the Buzzer drop-down, select Off. Click Apply.

Error	Possible Causes	Solutions
• I am not receiving email notifications.	• Email notification is disabled.	• Ensure you have configured email notification. For details, see 15.4.5 *Setting up Email Notification*, page 55.
	• Default setting is disabled, but you have not entered your own SMTP information.	• If you want to use your own SMTP server, deselect the Default box, and enter your SMTP Server address, Port, User name, and Password in the respective fields.

27 LH160 Series System Specifications

System

Operating System	Linux (embedded)
Pentaplex	Simultaneous view, record, playback, backup & remote monitoring
Number of Channels	8/12/16/24

Inputs/Ouputs

Video IN	8/12/16/24 x 1Vp-p, CVBS, 75ohms, BNC
Video OUT	1 x BNC
VGA OUT	Yes
HDMI	Yes
Audio IN	**8 ch:** 8 Line in (RCA), G.711, **12/16/24 ch:** 4 Line in (RCA), G.711
Audio OUT	1 line out (RCA), G.711
USB Port	1 at the back, 1 at the front
Alarm IN	8 Alarm IN
Alarm OUT	1 Alarm OUT
Video Output Resolution	1920x1080 (HDMI), 1440x900, 1280x1024, 1024x768
PTZ Control	RS-485 Pelco D & P Protocol

Display

Live Display	**8 ch:** 1, 4, 9 **12 ch:** 1, 4, 9, 12 **16 ch:** 1, 4, 9, 16 **24 ch:** 1, 4, 9, 16, 24
Live Display Speed	**8 ch:** 240 NTSC, 200 PAL **12 ch:** 360 NTSC, 300 PAL **16 ch:** 480 NTSC, 400 PAL **24 ch:** 720 NTSC, 600 PAL
OSD	ON/OFF
System Navigation	USB mouse, IR remote controller, front panel
Motion Area Setting	Adjustable grid (30x44) NTSC Adjustable grid (36x44) PAL
Sensitivity Levels	8
Firmware Upgrade	Automatic over the Internet & via USB device and network
User Authority	By user group
Time Synchronization	Auto time sync by NTP server

Recording

Video Compression	H.264
Audio Compression	G.711

Recording Resolution	**NTSC:** 960H: 960x480, 960x240, 480x240 D1 mode: 720x480(D1), 720x240, 360x240 **PAL:** 960H: 960x576, 960x288, 480x288 D1 mode: 720x576(D1), 720x288, 360x288
Recording Resolution Setting	Per camera for different resolutions
Recording Quality Control	3 levels
Recording Schedule	By hour, by day, by recording mode, by motion, by alarm, by channel
Pre Recording	Max. 10 Secs
Post Recording	Max. 5 Minutes
Reliability	Watch-Dog, auto-recovery after power failure
Covert Video	Yes

Playback

Playback Channel	**8ch:** 1~8 Adjustable **12 ch:** 1~12 Adjustable **16/24 ch:** 1~16 Adjustable
Playback Speed	Variable Max 16x
Playback Players	Backup Player
Search	By time & event
Log Search	Up to 100,000 lines for motion detected, configuration changes, connects/disconnects and video loss.
Audio Play	Yes

Storage & Archive

Storage	**8/12/16 ch:** Up to 1 HDD's (SATA) **24 ch:** Up to 2 HDD's (SATA)
Maximum Capacity	**8/12/16 ch:** up to 1 x 4TB **24 ch:** up to 2 x 4TB
Backup Media	USB flash drive & HDD
Backup File Format	H.264 file (AVI generator included)

Connectivity

Cloud Connection	Lorex Stratus Connectivity
Supported Operating Systems	Windows™ Mac OSX
Remote Software	Client Software (PC) & Safari (Mac)
Email Notification	Text with snapshot
Instant Smart Phone & Tablet Support	iPad®, iPhone®, Android™
DDNS	Free Lorex DDNS
System Configuration	Full setup configuration over network

Ports	Programmable by User
Network Protocol	TCP/IP / DHCP / UDP / DDNS / PPPoE
Network Interface	10/100-Base-TX, RJ-45
Network Speed Control	48Kb ~ 8MB/sec.

General

Power Consumption	Approx. 10 watts (No HDD Installed)
Supply Voltage	**8/12/16 ch:** 100VAC-240VAC, 12VDC, 2A, 50/60Hz **24 ch:** 100VAC-240VAC, 12VDC, 5A, 50/60Hz
Unit Dimensions (W x D x H)	**8/12/16 ch:** 11.8" x 9.9" x 2.4" 300mm x 251mm x 60mm **24 ch:** 14.9" x 13.3" x 1.9" 380mm x 340mm x 50mm
Unit Weight	**8 ch:** 1.7 kg/3.75 Lbs **12 ch:** 1.95 kg/4.3 Lbs **16 ch:** 2.0 kg/4.43 Lbs **24 ch:** 3.54 kg/7.8 Lbs
Operating Temperature	32° ~ 104° F / 0° ~ 40° C
Humidity	10 ~ 90% RH

Recording Resolution (Pixels) & Speed (FPS - Frames per second)

Model	FPS	960H 960 x 480
8ch	Total	240
	Per channel	30
12ch	Total	360
	Per channel	30
16ch	Total	480
	Per channel	30
24ch	Total	720
	Per channel	30

As our products are subject to continuous improvement, Lorex Corporation and its subsidiaries reserve the right to modify product design, specifications, and prices without notice and without incurring any obligation. E&OE

28 Notices

This product has been certified and found to comply with the limits regulated by FCC, EMC, and LVD. Therefore, it is designated to provide reasonable protection against interference and will not cause interference with other appliance usage. However, it is imperative that the user follows the guidelines in this manual to avoid improper usage, which may result in damage to the product, electrical shock and fire hazard injury.

28.1 FCC/IC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception (which can be determined by turning the equipment on and off), the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio or television technician for assistance.

28.2 Modification

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the device.

Toute modification non approuvée explicitement par le fournisseur de licence de l'appareil peut entraîner l'annulation du droit de l'utilsateur à utiliser l'appareil.

28.3 ROHS

This product is fully compliant with the European Union Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment ("RoHS") Directive (2002/95/EC). The RoHS directive prohibits the sale of electronic equipment containing certain hazardous substances such as lead, cadmium, mercury, and hexavalent chromium, PBB, and PBDE in the European Union.

Website

www.lorextechnology.com

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